



PLUS 

INNOVATION

Smart Materials & Energy for Transforming Life





VISION

LEADING INTEGRATED
PETROCHEMICAL
COMPLEX IN ASIA



MISSION

- OPERATIONAL EXCELLENCE
- HIGH PERFORMANCE ORGANIZATION
- CORPORATE SOCIAL RESPONSIBILITY
- VALUE CREATION
- INNOVATION & CREATION
OF NEW BUSINESS



VALUES

INDIVIDUAL OWNERSHIP
SYNERGY
PERFORMANCE EXCELLENCE
INNOVATION
RESPONSIBILITY FOR SOCIETY
INTEGRITY & ETHICS
TRUST & RESPECT



I INDIVIDUAL
OWNERSHIP



R RESULT
ORIENTED



P PROMISE AND
DELIVER



C CONTINUOUS
IMPROVEMENT



D DO THINGS
TOGETHER



N NO BIAS



A ACTIVELY SOLVE
THE PROBLEM



Content



- 08 Message from the Board of Directors
- 12 Key Performance
- 14 Financial Highlights
- 16 Milestones and Awards of Success

24 Duties and Responsibilities of the Board of Directors

- 26 Board of Directors
- 39 Organizational Structure
- 40 Management Team
- 49 Report of the Audit Committee
- 52 Message from Chairman of the Corporate Governance Committee
- 54 Message from the Chairman of the Nomination and Remuneration Committee
- 56 Message from the Chairman of the Risk Management Committee



58 Nature of Business and Business Performance

- 60 Business Structure and Shareholding
- 61
 - Major Subsidiaries, Joint Ventures, and Important Associated Companies
- 63 Nature of Business
- 68 Integrated Petroleum and Petrochemical Complex Flow Chart
- 70
 - Production Capacity and Volume
- 73 Products
- 83 Market Overview and Industry Outlook
- 95 Revenue Structure
- 97 Strategic Projects for Business Growth
- 103 Risk Management



113	Research and Development for Excellence
119	Driving Business for Sustainability
119	• Sustainability Management
126	• Corporate Social Responsibility
139	• Quality, Security, Safety, Health, and Environment Management
149	Management Discussion and Analysis (MD&A)
170	Securities, Shareholders, and other Important Information
172	• Securities and Shareholders
176	• Juristic Persons whose 10% of shares or more are held by IRPC

178 Corporate Governance

181	Corporate Governance Policy
186	Corporate Governance Structure and Important Information about the Board of Directors, Sub-committees, and Executives
214	Report of Key Corporate Governance Activities
243	People Management
247	Internal Control and Connected Transactions



258 Financial Statements

260	Report of the Board of Directors' Responsibilities for the Financial Reports
261	Report of the Independent Certified Public Accountants
264	Financial Statements
273	Notes to the Financial Statements



IRPC 4.0

The digital leader by integrating digital system for organization-wide efficiency enhancement.



€KON\$

Real-time efficiency improvement system, able to measure and monitor KPIs status of each individual plant.





INNOVATION^{PLUS} 

INNOVATION DEDICATED ORGANIZATION



IRPC has developed innovation excellence in all aspects by introducing digital technology for efficiency enhancement. **€KON\$**, real-time KPIs dashboard, is utilized to precisely predict maintenance in advance, uplifting the capacity of key businesses and outreaching to new ones.

Applying streamlined digital and technology systems for operational efficiency enhancement through **IRPC 4.0** and **Everest Forever (E4E)** Projects.



Created value-added of over

2,261

Million Baht

- **OPS 4.0** controls and plans production system with Artificial Intelligence (AI)
1,333 Million Baht
- **CCM 4.0** a digital system to meet customer needs with speedy response
539 Million Baht
- **ISC 4.0** a cutting-edge tool in selective buying of crude and raw material, and production planning
386 Million Baht
- **ERP 4.0** information technology structure formation focusing on corporate management system transformation
3 Million Baht



IRPC INNOVATION CENTER

Elevating research and development and innovation creation to the Excellence.

PROSTHETIC LEG

Polymer innovation to support quality prosthetic leg production.

GREEN CONCEPT WITH ECO SOLUTION

"Green Concept with Eco Solution" product uses plastic innovation to recycle with natural material.

FLOATING SOLAR

Floating Solar Project from polymer innovation, the largest in Southeast Asia.



INNOVATION^{PLUS} 

INNOVATIVE PRODUCTS FOR HUMAN LIFE



Places importance on continuous research and development, seeks for value-added innovations and satisfies customer needs in diverse forms, including innovation to strike a balance in economy, society and environment for better livelihoods of all.

Innovative production of IRPC combines plastic with other materials to become new products for consumer demand fulfillment and heightened life quality for the future.

PP Compound
Plastic parts account for EV Car **90%**

**POLIMAXX
Bio-Maxx L - Cement**
Natural rubber mixed with cement **30:70%**

**Polypropylene Copolymer
3340 H Grade**
The first runner-up of the 2020 National Innovation Award in Society and Environment

**POLIMAXX
Wood Plastics Composite**
Plastic mixed with wood chips **70:30%**



Message from the Board of Directors

+



“

Impacted by economic volatility, IRPC modified our operational plan and strategy to accommodate the circumstances and enhanced our competitiveness through various projects.

”

A handwritten signature in black ink, appearing to read 'Chansin T.' with a period at the end.

Mr. Chansin Treenuchagron

Chairman

(August 31, 2018-December 31, 2020)

Dear Shareholders,

The year 2020 was a challenge to petroleum and petrochemical businesses worldwide amidst slow-down global and Thai economies due to impacts from oil price war between Saudi Arabia and Russia and volatility of trade war between the superpowers. Above all, the worst impact was the COVID-19 pandemic. World crude prices substantially dropped as petroleum demand from transportation and tourism enormously declined due to country closure measures to control the pandemic, the direct impact on petroleum and petrochemical businesses.

Such economic turbulence had immense effect on IRPC's 2020 overall performance. The Company recorded 4,692 million baht earnings before interest, taxes, depreciation and amortization (EBITDA) with 6,152 million baht of net loss from oil stock loss during the first half of the year as crude prices swung around 13-69 USD per barrel despite our positive operating results in the 3rd quarter. To weather the situation, the Company transformed its operational plan and strategies to enhance competitiveness through various projects. For example, cost reduction



“

IRPC focuses on innovation and research development for business outreaches. Streamlined digital and technological systems are applied throughout the organization for operational efficiency boost-up.

”

Mr. Kris Imsang

Chairman

(January 19, 2021-Present)

and organizational capability boost up through the NOAH Project (New Organization Agile Human), development of high-value products through a 50:50 joint venture with Japan Polypropylene Corporation (JPP) in Mytex Polymers (Thailand) Co., Ltd. to expand the market of Polypropylene Compound (PP Compound) to satisfy automotive and electrical appliance industries, e-commerce polymer platform under the name Plastket.com to add distribution channels and customer accessibility, promotion of alternative energy use through the

12.5-megawatt floating solar power plant, the instituting of IRPC Innovation Center to develop innovation and research and development works in business, the introduction of streamlined digital and technology organization-wide to elevate operational efficiency, risk management of product and raw material spread and expense control practices adhered to throughout the Company.

Future challenging factors from uncertainties in petrochemical and refining businesses, more rigorous



“

IRPC is committed to business operations with good governance principles in parallel with creating balance in economy, society, and environment within the national and international sustainability management frameworks.

”

A handwritten signature in black ink, which appears to read 'Chawalit', written in a fluid, cursive style.

Mr. Chawalit Tippawanich

President and
Chief Executive Officer

price competition of regional producers and consumers' changing behavior in the Next Normal all affect the future demand for petrochemical and petroleum products. The Board of Directors has prepared to cope with these situations by defining operational directions and strategic plans to enhance competitiveness and foster sustainable business growth. Production efficiency improvement, development of high-value products with innovation excellence, investment expansion for continuous business growth will be implemented through a variety

of projects e.g. Ultra Clean Fuel (UCF) Project to align with the Euro 5 diesel standard of the public sector, with expected commercial production in 2023; ABS Powder Expansion Project to increase another 6,000 tons per year of capacity expected to commercialize in the 2nd quarter of 2021; the R&D Excellence Project for innovation excellence focusing on products in key business; innovation opportunities in the New S-curve; cooperation project with PTT to jointly study and produce Melt Blown fabric, raw material for surgical mask production, and produce Nitrile Butadiene Latex

(NBL) for medical gloves. In addition, IRPC originates a social value creation project in collaboration with Navamindradhiraj University to build Thailand and ASEAN's first fully integrated central laboratory for international standard medical product inspection with expected completion in the 2nd quarter of 2021.

IRPC has adhered to business operations under the good corporate governance principles, whilst striking a fine balance of economic, social, and environmental aspects within the sustainability management frameworks of domestic and international standards. These endeavors have earned the Company various certifications and honorable awards from renowned organizations and institutions both at home and overseas, remarkably confirming IRPC's accomplishments e.g. Dow Jones Sustainability Indices (DJSI) membership for the 7th consecutive year and the Gold Class Distinction of the Sustainability Yearbook in 2021 in the Oil & Gas Refining and Marketing, a recipient of an honorable plaque for listed

companies that conduct sustainable business operations or 2020 Thailand Sustainability Investment (THSI) in the resources sector. IRPC was also the only large private corporate to be awarded the Role Model Organization in Human Rights for the 2nd consecutive year. In addition, the Company was granted two 2020 Innovation Awards from the National Innovation Agency (NIA) i.e. Innovative Organization Honorable Award and the 1st Runner-up in Society and Environment.

The Board of Directors, the Management and employees of IRPC Public Company Limited are all thankful to shareholders and related parties who have confided in, trusted and supported our business operations. IRPC would stay determined and dedicated to performing our duties at full capacity to set the stage for stable business growth with good corporate governance principles for equitable benefits of shareholders and stakeholders in parallel with balanced creation of business and social values for our mutual sustainable advancements.

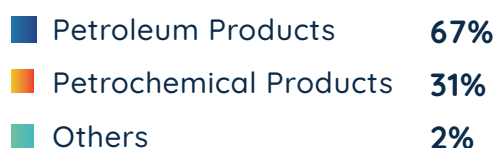
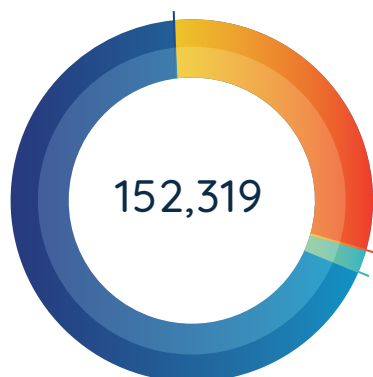
Key Performance

+

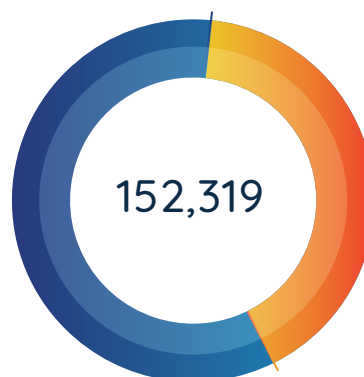
In 2020

(Unit: Million Baht)

Net Sales

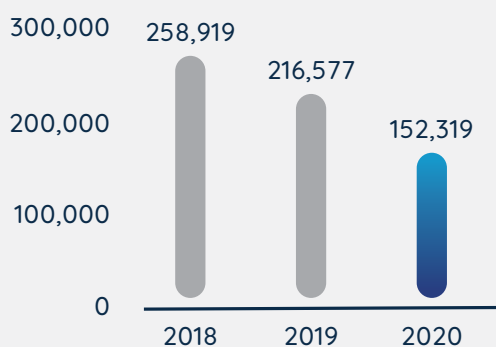


Sales Distribution



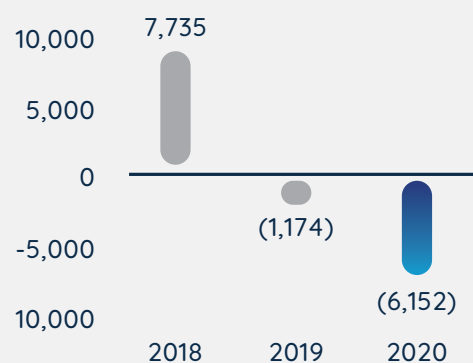
Net Sales

(Unit: Million Baht)



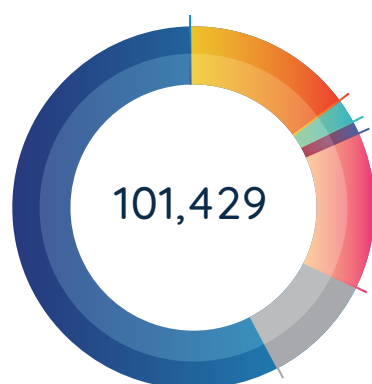
Net Profits

(Unit: Million Baht)



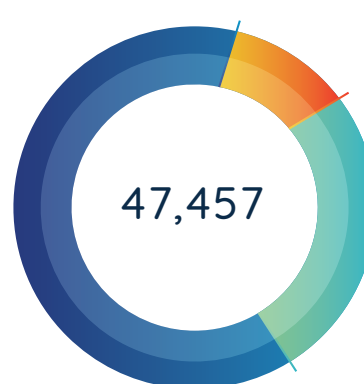
In 2020
(Unit: Million Baht)

Petroleum Products



■ Diesel	58%
■ Gasoline	15%
■ HSFO	2%
■ VLSFO	1%
■ Lube Base Oil and Asphalt	14%
■ Others	10%

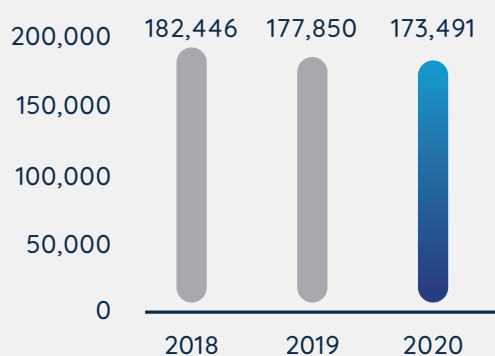
Petrochemical Products



■ Olefins and Polyolefins	62%
■ Aromatics	11%
■ Styrenics	27%

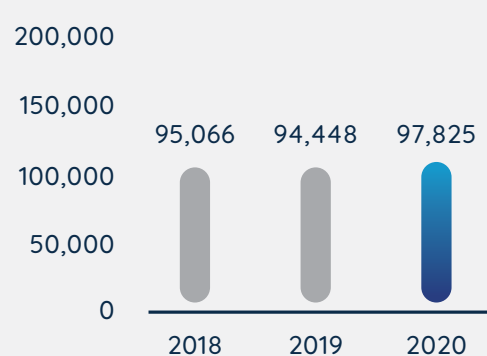
Total Assets

(Unit: Million Baht)



Total Liabilities

(Unit: Million Baht)



Financial Highlights +

Condensed Consolidated Financial Statements

(Unit: Million Baht)

	2020	2019	2018
Statement of Financial Position			
Current Assets	43,371	43,647	46,629
Total Assets	173,491	177,850	182,446
Current Liabilities	44,059	45,707	48,896
Total Liabilities	97,825	94,448	95,066
Shareholders' Equity	75,666	83,402	87,380
Registered Capital	20,475	20,475	20,475
Issued and Paid-up Capital	20,434	20,434	20,434
Statements of Income			
Sales Revenues ⁽¹⁾	174,463	239,315	280,551
Net Sales Revenues ⁽²⁾	152,319	216,577	258,919
Cost of Sales	174,491	236,569	264,637
Gross Profit (Loss)	(28)	2,745	15,914
Selling Expenses	1,375	1,464	1,524
Administrative Expenses	5,718	5,592	5,449
Profit (loss) from Operations	(6,115)	(356)	10,197
Net Profit (loss) (baht)	(6,152)	(1,174)	7,735
Net Profit (loss) per Share (baht)	(0.30)	(0.06)	0.38
Statements of Cash Flows			
Net cash flows from (used in) operating activities	11,149	7,527	18,304
Net cash flows from (used in) investing activities	(3,871)	(5,954)	(6,537)
Net cash flows from (used in) financing activities	(1,462)	(874)	(11,575)
Net increase in cash and cash equivalents	5,815	698	193
Cash and cash equivalents at the beginning of the period	3,036	2,338	2,145
Cash and cash equivalents at the end of the period	8,851	3,036	2,338

Notes:

(1) Sales revenues include sales of petroleum, petrochemical, power and utilities, storage tank, port service, etc.

(2) Net sales revenues include sales of petroleum (excluding excise tax), petrochemical, power and utilities.

Key Financial Ratios

	2020	2019	2018
Liquidity Ratio			
Current Ratio (times)	0.98	0.95	0.95
Quick Ratio (times)	0.42	0.29	0.30
Cash Flow Current Ratio (times)	0.25	0.16	0.37
Account Receivable Turnover Ratio (times)	17.63	21.41	22.42
Collection Period (days)	20	17	16
Inventory Turnover Ratio (times) ⁽¹⁾	7.40	8.69	9.05
Inventory Period (days)	49	41	40
Accounts Payable Turnover Ratio (times)	7.14	9.26	10.13
Payment Period (days)	50	39	36
Cash Cycle (days)	19	19	20
Profitability Ratio			
Gross Profit Margin	(0.02%)	1.15%	5.67%
Net Profit Margin ⁽²⁾	(3.53%)	(0.49%)	2.76%
Return on Equity	(7.75%)	(1.38%)	8.85%
Efficiency Ratio			
Return on Asset	(3.50%)	(0.65%)	4.22%
Total Asset Turnover Ratio (times)	1.00	1.34	1.54
Financial Policy Ratio			
Debt to Equity Ratio (times)	1.30	1.13	1.09
Interest-bearing Debt to EBITDA Ratio (times) ⁽³⁾	12.90	9.79	3.17
Net Interest-bearing Debt to EBITDA Ratio (times) ⁽⁴⁾	11.64	9.34	3.04
Interest-bearing Debt to Equity Ratio (times)	0.82	0.71	0.66
Net Interest-bearing Debt to Equity Ratio (times)	0.71	0.67	0.63
Interest Coverage Ratio (times)	2.47	3.09	9.38
Dividend Payout Ratio	n.a.	n.a.	50%
Book Value per Share (baht/ share)	3.70	4.07	4.27

Notes:

(1) Inventory Turnover Ratio = cost of sales divided by average net inventory (average)

(2) Net Profit Margin Ratio = net profit divided by sales revenues

(3) Interest - bearing Debt to EBITDA Ratio = interest-bearing debt (average) divided by earnings before interest, taxes, depreciation and amortization (EBITDA)

(4) Net Interest-bearing Debt to EBITDA Ratio = (net interest-bearing debt - cash (average)) divided by earnings before interest, taxes, depreciation and amortization (EBITDA)

Milestones and Awards of Success



IRPC developed a memorandum of understanding for the joint development of a pipeline system for oil transportation from IRPC's refinery to Thapline's pipeline system.
The MoU was between IRPC PLC and PTT Tank Terminal Co., Ltd.



Received certificate and Sema Khunupakan commemorative pin

Mr. Noppadol Pinsupa, President and CEO of IRPC, received a certificate and Sema Khunupakan commemorative pin for his contribution and exemplary support for the Ministry of Education's educational initiatives, including the granting of scholarships to IRPC Technological College and the development of skills in students to elevate Thailand's vocational education.



IRPC took part in solving the PM 2.5 problem.

IRPC participated in an idea exchange session with the Thailand Business Council for Sustainable Development (TBCSD) and the Thailand Environment Institute (TEI) to find solutions to the PM2.5 problem and develop guidelines for integrated management to produce tangible results, in line with IRPC's business directions.



50:50 joint venture with Japan Polypropylene Corporation Limited (JPP)

IRPC embarked on a 50:50 joint venture with Japan Polypropylene Corporation Limited (JPP) to make a foray into the specialty polypropylene compound (PP compound) market with Mytex polymers, catering to manufacturers of automotive parts and electrical vehicles (EV) in Thailand and Southeast Asia.



IRPC launched IRPC Cubic Academy Season 6

to foster awareness and understanding of good corporate governance as well as disseminate knowledge of important principles, concepts, and international standards. The training promotes lifelong learning as a way to develop both internal and external human resources and is free of charge.



Asia Responsible Enterprise Awards (AREA) 2020

IRPC won an award in the category of Social Empowerment at Enterprise Asia's Asia Responsible Enterprise Awards (AREA) 2020 for its Smile Farm: Sustainable Agriculture for Disabilities Project, an initiative in IRPC's Lam Sai Yong Model Project, which was carried out in the Center for the Development of Persons with Disabilities in Udondiolese, Ban Dung District, Udon Thani, and sought to enable people with disabilities to earn income and develop self-reliance by promoting learning and creating sustainable agricultural occupations for them.



IRPC won a Human Rights Award

from the Department of Rights and Liberties Projection, the Ministry of Justice for its outstanding human rights performance and for serving as a role model for fostering a society guided by respect for human rights sustainably.



IRPC announced its intention to pursue the Sustainable Development Goals (SDGs) of the United Nations on the occasion of the 20th anniversary of the United Nations Global Compact (UNGC) and the 75th anniversary of the United Nations (UN).



Eco-Factory certificates for the sixth consecutive year

IRPC received Eco-Factory certificates for the sixth consecutive year in recognition of the excellent resource and environmental impact management in the vicinity of IRPC Industrial Park for the following plants:

1. Wastewater Treatment Plants 1 and 2
2. Wastewater Treatment Plant 3
3. Water Supply Plant (UT-IP)
4. PTK Catalyst Plant
5. ABS & SAN Plant
6. Compounding Plastic Plant
7. EPS Plant
8. Ethylbenzene Styrene Monomer Plant



IRPC won two National Innovation Awards

from National Innovation Agency (NIA):

- Distinction Prize for Innovative Organizations (Large Organization) in recognition of IRPC's application of digital technology and innovation to every business process to enhance organization-wide operational efficiency
- First runner-up Award in the Social and Environment category for "Innovative Plastic for People with Disabilities," a research and development collaboration with the Prostheses Foundation of H.R.H. the Princess Mother, for which IRPC produced translucent polypropylene (PP).



IRPC signed a memorandum of understanding for the second phase of the iPEC Program,

a joint advanced vocational education project between IRPC Technological College and PTT Group for the development of the workforce in petrochemical and energy industries.



IRPC signed an MOU within PTT Group under Project One

to enhance PTT Group's competitiveness and sustainable growth. The MOU involves the use of asset-backed trading to unlock the potential of each business unit and the leveraging of a diverse range of assets to strengthen domestic energy procurement and enhance the ability to create added value through synergy within PTT Group, which will ultimately lead to sustainable success.



IRPC received a plaque of honor as a company with good corporate governance

from the Thai Chamber of Commerce. The accolade recognized IRPC's application of good corporate governance practices to corporate management in support of sustainable organization development.



To foster a green supply chain and reduce plastic waste for the environment

IRPC exchanged ideas with domestic plastic producers to collaboratively solve the problem of plastic waste from food packaging and affirm their joint environmental responsibility at Propak Asia 2020.



IRPC won accolades at the Asian Excellence Award 2020
hosted by Corporate Governance Asia Magazine:

- Asia's Best CEO
- Asia's Best CFO
- Best Investor Relations Professional Award
- Best Investor Relations Company for the seventh consecutive year.



IRPC was selected as a member of the Dow Jones Sustainability Indices (DJSI) for the 7th consecutive year in the Oil & Gas Refining and Marketing category, highlighting IRPC's commitment to its sustainable development policy.

Member of
Dow Jones Sustainability Indices
Powered by the S&P Global CSA

IRPC establishments were named winners of the Competition for Outstanding Establishment Models on OSH&E

organized by the Department of Labor Protection and Welfare: Condensate Residue, PS, BTX, IRPC Ayutthaya Depot, IRPC Phra Pradaeng Depot, and IRPC Chumphon Depot. IRPC has garnered these honors for the third consecutive year.



CEO-to-CEO Mission Transfer

Mr. Noppadol Pinsupa, President and CEO of IRPC PLC, passed on his CEO mission and guidelines to Mr. Chawalit Tippawanich, the President and CEO of Global Power Synergy PLC, who succeeded him as IRPC's President and CEO and was also appointed as a Director as resolved by the Board of Directors, effective as of December 1, 2020.



IRPC piloted a collaborative single-use plastic waste management program

in partnership with KFC and Thai Worldwide Polyproducts Co., Ltd., IRPC's customer and supplier. In this pilot model, plastic waste produced in KFC outlets would be recycled for further use, enabling those in need under the care of the Mirror Foundation to earn income through waste collection and separation.



IRPC won the CSR-DIW Continuous Awards

from the Department of Industrial Works, the Ministry of Industry, for the 10 following plants: PP, HDPE, PS, DCC, ETP, ACB, LBOP, PW, UT-IP, and UT-BK, as part of the Corporate Social Responsibility, Department of Industrial Works (CSR-DIW) Project.



IRPC unveiled the Floating Solar

which features pontoons made from the innovative special-grade gray high-density polyethylene (HDPE). Installed on a 200-rai raw water reservoir of the Company, the Floating Solar has a capacity of 12 MW, the largest in Southeast Asia.



IRPC garnered three Industry Awards

in the categories of Potential Industry, Energy Management, and Quality Management from the Department of Industrial Works, the Ministry of Industry.



IRPC was included on the Thailand Sustainability Investment (THSI) 2020 list of the Stock Exchange of Thailand in the Resources category.



Share Purchase Agreement

IRPC entered into a share purchase agreement with Japan Polypropylene, a listed company in Japan, to buy a total of 600,000 shares (50% of the registered capital) in Mytex Polymer (Thailand) Company Limited, a listed company in Thailand that manufactures and distributes special grade plastic resins, for 350 million baht.



IRPC renewed the loan agreement

with PTT Public Company Limited. As per this agreement, IRPC enjoys a credit line of 10 billion baht and a debit line of 1.5 billion baht for cash flow management within the PTT Group.



a Trailblazer Award

IRPC won a Trailblazer Award at the PDPA Awards 2020, organized by the Securities and Exchange Commission (SEC), in collaboration with the Office of the Personal Data Protection Commission (PDPC), Chulalongkorn University's Faculty of Law, and the Thailand Productivity Institute, to raise awareness among government agencies and private organizations of the upcoming enactment of the Personal Data Protection Act B.E. 2019 (PDPA). The award testifies to IRPC's leadership in its preparedness for the enforcement of the PDPA.



IRPC issued and offered debentures

IRPC issued and offered name-registered, unsubordinated, unsecured debentures with a debenture holder's representative, with the issue size of 12,000 million baht and a maturity of 2-15 years for use as a circulating fund for business operations or for refinancing. The debenture program was rated A- (tha) by Fitch Rating (Thailand) Company Limited.





Innovated Solutions

IRPC, concerned and worried with the COVID-19 pandemic situation, play a part by offering “Medical Innovation”, utilizing our knowledge in researches, product design, and development engineering to produce equipment and tools for respiratory system infection prevention. This aims to enhance safety and protect medical personnel and the public to be able to handle the pandemic at present and in the future.



Negative Pressure Infection Test Cabinet

IRPC, in collaboration with King Mongkut's Institute of Technology Ladkrabang (KMUTL) and Eastern Polypack Co., Ltd., donated negative pressure swab test units to the Priest Hospital and Police General Hospital for the COVID-19 virus infection test.



Negative Pressure Plastic Bed Cover

Developed negative pressure plastic bed cover, a specialty plastic, for hospitals to enhance safety for medical personnel.



Giving Spunbond Fabric to Produce PPE

Gave 20,000 meters of spunbond fabric to produce PPE for medical personnel to prepare for the virus situation.



IRPC signed a memorandum of understanding with the Faculty of Medicine Vajira Hospital, Navamindradhiraj University

To build a medical product testing laboratory that meets international standards in order to elevate the development of knowledge and research in Thailand and encourage the domestic production of medical devices to replace imports.





Rayong Ruam Jai Phat Building



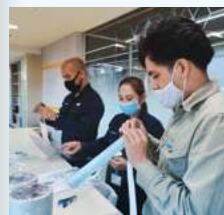
General Prayut Chan-o-cha, the Prime Minister, visited Rayong Ruam Jai Phat Building during the COVID-19 pandemic in Rayong province.

IRPC engineer team who designed Rayong Ruam Jai Phat Building



Graphene Mask

Researched and developed Graphene Mask, able to prevent bacteria and dust accumulation, and comfortable for wearing.



Face Shield Mask

Co-produced and gave face shield masks to government hospitals as a part to prevent the COVID-19 pandemic and alleviate the equipment shortage problem.



Hand Sanitizing Alcohol

Supported sanitizing alcohol for cleaning and preventing the infection of COVID-19 virus for medical personnel, teachers, students, personnel as well as patients.





Duties and Responsibilities of the Board of Directors

Board of Directors

Organizational Structure

Management Team

Report of the Audit Committee

Message from Chairman of
the Corporate Governance Committee

Message from the Chairman of
the Nomination and Remuneration Committee

Message from the Chairman of
the Risk Management Committee

Board of Directors



1. Mr. Chansin Treenuchagron

Chairman

Holding the position of Chairman until December 31, 2020

2. Mr. Kris Imsang

Chairman

Holding the position of Chairman from January 19, 2021

3. Air Marshal Boonsuib Prasit

Independent Director/ Member of the Nomination and Remuneration

4. Mr. Woothisarn Tanchai

Independent Director/ Chairman of the Nomination and Remuneration Committee

5. Mr. Charcrie Buranakanonda

Independent Director/ Member of the Corporate Governance Committee

6. Mr. Anusorn Sangnimnuan

Independent Director/ Chairman of the Corporate Governance Committee

7. Mr. Noppadol Pinsupa

Director/ Member of the Corporate Governance Committee

Holding the position of the President and CEO/ Member of the Risk Management Committee/ Secretary of the board of Director until December 1, 2020



8. Mr. Chawalit Tippawanich

Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors

Holding the position
from December 1, 2020

9. Mr. Ekniti Nitithanprapas

Director/ Member of the Risk Management Committee

10. Miss Siriwan Chierapong

Independent Director/ Member of the Audit Committee

11. Mr. Jumpol Sumpaopol

Independent Director/ Member of the Audit Committee

12. Mr. Somnuk Bomrungsalee

Independent Director/ Chairman of the Audit Committee

13. Mr. Nuttachat Charuchinda

Independent Director/ Chairman of the Risk Management Committee

14. Mr. Wattanapong Kurovat

Director/ Member of the Risk Management Committee

Board of Directors, IRPC Public Company Limited

Mr. Chansin Treenuchagron

Age: 60 Years

Appointed Positions:

Chairman

Date of being a Director

20 October 2015

Date of being the Chairman

31 August 2018

Years of being a Director

5 Years 2 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Economics Program, Thammasat University
- Master of Economic, Chulalongkorn University
- Honorary Doctorate of Science (Technology Management) Thammasat University
- Executive Development Relation, Class 1, Directorate of Civil Affairs
- The Executive Program in Energy Literacy for a Sustainable Future, Class 7/2015, Thailand Energy Academy (TEA7)
- Diploma, National Defence College, The National Defence Course, Class 57/2014, Thailand National Defence College
- Leadership Development Program III (LDP III), Class 1/2014, PTT Public Company Limited
- Advance Senior Executive Program (ASEP-5), Class 5/2010, KELLOGG & SASIN, Chicago, USA
- Air War College, Class 35/2006
- Senior Executive Program (SEP), Class 20, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- PTT Executive Leadership, General Electric, GE, New York, USA
- Advanced Certificate Course in Public Economics Management for Executives, Class 10, King Prajadhipok's Institute
- Leadership Excellence through Awareness and Practice (LEAP), INSEAD, Singapore & France
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Chartered Director Class (CDC), Class 11/2015, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 93/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 85/2007, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Aug. 2018 - Dec. 2020	Chairman, IRPC Public Company Limited
Oct. 2015 - Dec. 2020	Director, IRPC Public Company Limited
Aug. 2018 - May. 2020	President/ Chief Executive Officer/ Director/ Secretary to the Board, PTT Public Company Limited
Sep. 2018 - Aug. 2020	Director, PTT Exploration and Production Public Company Limited

Jan. 2018 - Aug. 2018	Chief Technology and Engineering Officer, PTT Public Company Limited
Dec. 2017 - Aug. 2018	Chairman, PTT Digital Solutions Company Limited
Oct. 2017 - Aug. 2018	Director/ Member of Risk Management Committee/ Member of Nomination and Remuneration Committee, Global Power Synergy Public Company Limited
Apr. 2016 - Aug. 2018	Member of the Risk Management Committee, IRPC Public Company Limited
Oct. 2015 - Aug. 2018	Director, IRPC Public Company Limited
Oct. 2017 - Dec. 2017	Chief Operating Officer, Infrastructure and Sustainability Management Business Group, PTT Public Company Limited
Apr. 2017 - Dec. 2017	Chairman, PTT Asahi Chemical Company Limited
Jan. 2016 - Sep. 2017	Senior Executive Vice President, Downstream Business Group Alignment, PTT Public Company Limited
Nov. 2015 - Dec. 2017	Chairman, PTT Polymer Marketing Company Limited
Nov. 2015 - Mar. 2017	Chairman, PTT Polymer Logistics Company Limited
Oct. 2015 - Dec. 2015	Senior Executive Vice President, Petrochemicals & Refining Business Unit, PTT Public Company Limited
Oct. 2014 - Dec. 2015	Chairman, PTT Green Energy (Thailand) Company Limited
Apr. 2015 - Oct. 2015	Director, Thai Oil Public Company Limited
Oct. 2014 - Sep. 2015	Senior Executive Vice President, Corporate Strategy, PTT Public Company Limited
Apr. 2012 - Jul. 2015	Director, PTT Polymer Logistics Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Sep. 2020 - Present	Director / Director of the Corporate Governance Committee, PTT Global Chemical Public Company Limited
Jul. 2020 - Present	Director as Acting President of the Company, Thai Airways International Public Company Limited
Jun. 2020 - Present	Director, Thai Airways International Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Aug. 2020 - Present	Chairman, Y.S.S (THAILAND) Company Limited
---------------------	--

Mr. Woothisarn Tanchai

Age: 62 Years

Appointed Positions:

Independent Director/ Chairman of the Nomination and Remuneration Committee

Date of being an Independent Director

19 June 2015

Date of being the Chairman of the Nomination and Remuneration Committee

19 June 2015

Years of being a Director

5 Years 6 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Mar. 2018 - Present

Chairman of the Sub-Committee, the National Anti-Corruption Commission (NACC)

2016 - Present

Honorary Board Member, Thammasat University Council

Dec. 2014 - Present

Secretary General, King Prajadhipok's Institute Sub-Committee, the National Anti-Corruption Commission (NACC)

2011 - Present

2008 - Present

Honorary Board Member, Nakhon Ratchasima Rajabhat University Council

Education/ Training

- Bachelor of Science, Khon Kaen University
- Master of Public Administration, National Institute of Development Administration (NIDA)
- Master of Policy Science (M.P.S.), International Program, Saitama University, Japan
- Public Law Certificate, Faculty of Law, Thammasat University
- Public Director Certification Program (PDI), Class 1, King Prajadhipok's Institute
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2011 - Aug. 2018	Member, the National Culture Commission
2011 - Oct. 2018	Sub-Committee, the Office of the Public Sector Development Commission (OPDC)
Sep. 2017 - 2019	Director, Member of the Board of Directors of the Strategy for Balancing and Developing the Public Sector management System

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jun. 2015 - Present	Independent Director/ Chairman of the Nomination and Remuneration Committee, IRPC Public Company Limited
---------------------	--

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Oct. 2020 - Present	Honorary Board Member of the Development and Promotion of Public Organization Committee
Oct. 2020 - Present	Sub-Committee, the office of the Public Sector Development Commission (OPDC)
2020 - Present	Sub-Committee on Civil Service Organization of Government Agencies and Compensation, Office of the Civil Service Commission of Bangkok
Feb. 2020 - Present	Vice President, Nakhon Pathom Rajabhat University Council

Mr. Anusorn Sangnimnuan

Age: 66 Years

Appointed Positions:

Independent Director/ Chairman of the Corporate Governance Committee

Date of being an Independent Director

27 August 2016

Date of being the Chairman of the Corporate Governance Committee

1 September 2016

Years of being a Director

4 Years 4 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- B.Sc. (Chemical Engineering), Chulalongkorn University
- M.Eng. (Environmental Engineering), Asian Institute of Technology (AIT)
- Ph.D. (Chemical Engineering), Monash University, Melbourne, Australia
- Diploma, National Defence College, The joint State - Private Sector Course, Class 20, Thailand National Defence College
- Leadership Program, Class 10, Capital Market Academy The Stock Exchange of Thailand
- Advanced Diploma, Public Administration and Public Law, Class 5, King Prajadhipok's Institute
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- DCP Refresher Course (DCP RE), Class 1/2008, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 62/2005, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 40/2005, Thai Institute of Directors Association (IOD)
- Finance for Non-Finance Directors Program (FND), Class 22/205, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2014 - 2017	Independent Director, Pruksa Real Estate Public Company Limited
2014 - 2017	Chairman, The Transport Company limited
2013 - 2017	Director, Office of The National Economic and Social Development Board
2013 - 2016	Director, The Krungthep Thananakom Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Sep. 2016 - Present	Chairman of the Corporate Governance Committee, IRPC Public Company Limited
Aug. 2016 - Present	Independent Director, IRPC Public Company Limited
2016 - Present	Independent Director/ Chairman of the Corporate Governance Committee/ Member of the Nomination and Remuneration Committee, Pruksa Holding Public Company Limited
2016 - Present	Director, B.Grimm Power Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

None

Mr. Nuttachat Charuchinda

Age: 65 Years

Appointed Positions:

Independent Director/ Chairman of the Risk Management Committee

Date of being a Director

29 April 2016

Date of being an Independent director

4 February 2020

Date of being the Chairman of the Risk Management Committee

29 April 2016

Years of being a Director

4 Years 8 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering, Chiangmai University
- Master of Business Administration, Thammasat University
- Program for Global Leadership (PGL), Harvard Business School, USA
- Oxford Energy Seminar, UK
- Break Through Program for Senior Executives (BPSE), IMD Institute, Switzerland
- Diploma, National Defence College, The Joint State - Private Sector Course, Class 20, Thailand National Defence College
- Executive Program, Class 15, Capital Market Academy (CMA)
- Executive Program, Energy Education, Class 3, Thailand Energy Academy
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 129/2010, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Jan. 2019 - Jan. 2020	Director, PTT Public Company Limited
Jul. 2017 - Jun. 2019	President, Bangkok Mass Transit Authority
May 2014 - Apr. 2016	Chairman, PTT Energy Resources Company Limited
2013 - Apr. 2016	Director, Thai Oil Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Feb. 2020 - Present	Independent Director, IRPC Public Company Limited
Apr. 2016 - Present	Director/ Chairman of the Risk Management Committee, IRPC Public Company Limited
Aug. 2017 - Present	Director, National Power Supply Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Dec. 2017 - Present	President, Ritta Holdings Company Limited
---------------------	---

Mr. Somnuk Bomrungsalee

Age: 63 Years

Appointed Positions:

Independent Director/ Chairman of the Audit Committee

Date of being a Director

9 April 2014

Date of being an Independent Director

1 October 2017

Date of being the Chairman of the Audit Committee

2 December 2017

Years of being a Director

6 Years 8 Months

Possession of IRPC shares (%)

No. of share "IRPC": 50,000 Share Possession: 0.00024%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Civil Engineering), King Mongkut's University of Technology Thonburi (KMUTT)
- Master of Public and Private Management, The National Institute of Development Administration (NIDA)
- Advanced Master of Management program, Class 2/2018, The National Institute of Development Administration (NIDA)
- The Program for Senior Executive on Justice, Class 20/2015, Administration Batch, National Justice Academy
- The Executive Program in Energy Literacy for a Sustainable Future, Class 5/2014, Thailand Energy Academy (TEA)
- Executive Training Course 2, Class 5/2013, Office of the Civil Service Commission
- Advanced Certificate Course Politics and Governance in Democratic Systems for Executives, Class 16/2012, King Prajadhipok's Institute
- Executive Training Course, Class 65/2009, Office of the Civil Service Commission
- Energy Executive Course, Class 2/2008, Ministry of Energy
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 233/2017, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Feb. 2018 - 2019	Advisor, Energy Fund Administration Institute
Nov. 2017 - 2018	Sub - Committee, State Audit Commission, Office of the Auditor General of Thailand
Apr. 2016 - Nov. 2017	Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Oct. 2016 - Sep. 2017	Deputy Secretary of Energy
Oct. 2015 - 2019	Sub - Committee, Energy Commission, The National Legislative Assembly
Jul. 2014 - Sep. 2016	Inspector General, Ministry of Energy

Current Position**Board Member/ Management in Listed Company - The Stock Exchange of Thailand**

Nov. 2018 - Present	Independent Director/ Audit Committee/ Chairman of Nomination and Remuneration Committee, Megachem (Thailand) Public Company Limited
Dec. 2017 - Present	Chairman of the Audit Committee, IRPC Public Company Limited
Oct. 2017 - Present	Independent Director, IRPC Public Company Limited
Apr. 2014 - Present	Director, IRPC Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

None

Mr. Ekniti Nitithanprapas

Age: 49 Years

Appointed Positions:

Director/ Member of the Risk Management Committee

Date of being a Director

17 November 2015

Date of being the Member of the Risk Management Committee

16 March 2016

Years of being a Director

5 Years 1 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- B.A. in Economics, (Honor), Thammasat University
- M.S. in Economics/ Policy Economics, University of Illinois at Urbana-Champaign, USA
- Ph.D. in Economics/ Macroeconomics and International Finance, Claremont Graduate University, USA
- Advanced Certificate Course in Public Administration and Law for Executives, Class 9/2011, King Prajadhipok's Institute
- Oxford Programme On Negotiation in Bangkok, Leadership Focus Institute
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Role of the Chairman Program (RCP), Class 45/2019, Thai Institute of Directors Association (IOD)
- Board Matters and Trend (BMT), Class 4/2017, Thai Institute of Directors Association (IOD)
- Role of the Nomination and Governance Committee (RNG), Class 8/2016, Thai Institute of Directors Association (IOD)
- Corporate Governance for Capital Market Intermediaries (CGI), Class 4/2015, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 93/2007, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Jun. 2018 - Jan. 2020	Director/ Chairman, Krungthai Bank Public Company Limited
Jul. 2018 - Oct. 2019	Chairman, Thai Airways International Public Company Limited
Jun. 2018 - Oct. 2019	Director, Thai Airways International Public Company Limited
Nov. 2015 - May 2018	Director, Siam Commercial Bank Public Company Limited
Nov. 2015 - May 2018	Member of Nomination, Compensation and Corporate Governance Committee, Siam Commercial Bank Public Company Limited
Nov. 2015 - May 2018	Chairman, National Credit Bureau Company Limited
Oct. 2015 - May 2018	Director-General of the State Enterprise Policy Office, Ministry of Finance

Current Position**Board Member/ Management in Listed Company - The Stock Exchange of Thailand**

Feb. 2020 - Present	Chairman, TMB Bank Public Company Limited
Feb. 2020 - Present	Chairman, Thanachart Bank Public Company Limited
Mar. 2016 - Present	Member of the Risk Management Committee, IRPC Public Company Limited
Nov. 2015 - Present	Director, IRPC Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

May. 2018 - Present	Director-General of the Revenue Department
---------------------	--

Mr. Kris Imsang

Age: 55 Years

Appointed Positions:

Chairman

Date of being a director

2 December 2017

Date of being the Chairman

19 January 2021

Years of being a director

3 Years

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Civil Engineering), Chulalongkorn University
- Certification in Top Executives in the Poom Palung Pandin Program, Class 3, Chulalongkorn University
- Leadership Development Program III, Class 2, PTT Public Company Limited
- Top Executive Program, Class 23, Capital Market Academy (CMA)
- Top Executive in Energy Program, Class 9, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 62, Thailand National Defence College
- The Role of the Board in IT Governance, Year 2020 Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 139/2010, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Mar. 2019 - Jan. 2021	Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Nov. 2019 - May 2020	Senior Executive Vice President, Down Stream Business Group Alignment, PTT Public Company Limited
Oct. 2018 - Oct. 2019	Senior Executive Vice President, Corporate Governance and Regulatory Affairs, PTT Public Company Limited
Jan. 2018 - Sep. 2018	Senior Executive Vice President, Organization Management and Sustainability, PTT Public Company Limited
Dec. 2017 - Feb. 2019	Member of the Corporate Governance Committee, IRPC Public Company Limited
Sep. 2017 - Oct. 2019	Chairman, Sarn Palung Social Enterprise Company Limited
Mar. 2016 - Aug. 2019	Committee, Kamnoetvidya Science Academy (KVIS)
Feb. 2016 - Dec. 2017	Senior Executive Vice President, Human Resources & Organization Excellence, PTT Public Company Limited
Feb. 2015 - Nov. 2019	Chairman, Energy Complex Company Limited
Aug. 2015 - Jan. 2016	Executive Vice President, Retail Marketing, PTT Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present	Chairman, IRPC Public Company Limited
Jun. 2020 - Present	Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
Dec. 2017 - Present	Director, IRPC Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Sep. 2020 - Present	Chairman, PTT Tank Terminal Company Limited
Aug. 2019 - Present	Qualified Member of the Committee for Social Enterprise Promotion

Air Marshal Boonsuib Prasit

Age: 68 Years

Appointed Positions:

Independent Director/ Member of the Nomination and Remuneration

Date of being an Independent Director

3 April 2019

Date of being the Member of the Nomination and Remuneration

4 April 2019

Years of being a director

1 Years 8 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Armed Forces Academies Preparatory School, Class 13
- Royal Thai Air Force Academy, Class 20
- Master of Engineer (Aeronautical Engineering), Hochschule der Bundeswehr Muenchen, Germany
- Squadron Officers, Class 56
- Air Command and Staff College, Class 33
- Air War College, Class 36
- Certificate in top Executives in the Energy Education Program, Class 8/2016, Thailand Energy academy (TEA)
- Thailand's 5th National Conference on Collective Action Against Corruption (Tackling Corruption through Public-Private Collaboration)
- Seminar "Incorporation of State Investment Corporation"
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Ethical Leadership Program (ELP) Class 7/2017, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 117/2015, Thai Institute of Directors Association (IOD)
- Role of the Nomination & Governance Committee Program (RNG), Class 7/2015, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2016 - 2018	Independent Director/ Chairman of the Nominating Committee, PTT Public Company Limited
2014 - 2016	Independent Director/ Member of the Nominating Committee, PTT Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Apr. 2019 - Present	Independent Director, Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
---------------------	--

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

2019 - Present	Chairman, Spot Services Alliances Company Limited
----------------	--

Miss Siriwan Chierapong

Age: 66 Years

Appointed Positions:

Independent Director/ Member of the Audit Committee

Date of being an Independent Director

3 April 2019

Date of being the Member of the Audit Committee

4 April 2019

Years of being a director

1 Year 8 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Accountancy, Chulalongkorn University
- Master of Business Administration (M.B.A.), Thammasat University
- Senior Executive Program (SEP), Class 16, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- NIDA-Wharton Executive Leaders Program, The Wharton School University of Pennsylvania
- PTT Executive Leadership Program, General Electric, New York, USA
- Advanced Certificate Course in Public Economics Management for Executives, Class 7/2008, King Prajadhipok's Institute
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certificate Program (DCP) Class 102/2008, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2014 - 2018	Advisor, PTT Polymer Marketing Company Limited
2013 - 2014	President, PTT Polymer Marketing Company Limited
2012 - 2013	Executive Vice President, Strategy and Portfolio Management, Corporate Strategy and Organization Development, PTT Public Company Limited
2009 - 2012	Executive Vice President, Business Development and Project Management, Petrochemicals and Refining Business Unit, PTT Public Company Limited
2005 - 2009	Executive Vice President, Subsidiary Planning and Management, Petrochemicals and Refining Business Unit, PTT Public Company Limited

Current Position**Board Member/ Management in Listed Company - The Stock Exchange of Thailand**

Apr. 2019 - Present	Independent Director/ Member of the Audit Committee, IRPC Public Company Limited
---------------------	--

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

None

Mr. Charcrie Buranakanonda

Age: 65 Years

Appointed Positions:

Independent Director/ Member of the Corporate Governance Committee

Date of being an Independent Director

22 May 2019

Date of being the Member of the Corporate Governance Committee

22 May 2019

Years of being a director

1 Year 7 Months

Possession of IRPC shares (%)

No. of share "IRPC": 55,000 Share Possession: 0.00027%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Machinery Engineering), Kasetsart University
- Advanced Certificate Course in Public Administration and Law for Executives, King Prajadhipok's Institute, 2010
- PTT - GE Executive Program, GE Croton Ville, USA 2012
- Public Director Certification Program (PDI), 2013, King Prajadhipok's Institute
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certificate Program (DCP) Class 103/2008, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2012 - 2015	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
2011 - 2012	Executive Vice President, Natural Gas Separation, PTT Public Company Limited.
2009 - 2011	Executive Vice President, Natural Gas Pipeline System, PTT Public Company Limited

Current Position**Board Member/ Management in Listed Company - The Stock Exchange of Thailand**

May 2019 - Present	Independent Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
--------------------	---

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

None

Mr. Wattanapong Kurovat

Age: 46 Years

Appointed Positions:

Director/ Member of the Risk Management Committee

Date of being a director

21 August 2019

Date of being the Member of the Risk Management Committee

21 August 2019

Years of being a director

1 Year 3 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Political Science, Thammasat University
- Master of Business Administration (MBA), Western Michigan University, USA
- The Civil Service Executive Development Program: Visionary and Moral Leadership Class 86, Civil Service Training Institute, Office of the Civil Service Commission
- Chief of Staff Program Class 53, Joint Staff College, National Defense Studies Institute
- The Executive Program in Energy Literacy for Sustainable Future TEA Class 13, Thailand Energy Academy
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 288/2020, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 168/2020, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Feb. 2018 - Apr. 2019	Deputy Director General, Energy Policy and Planning Office
Apr. 2015 - Feb. 2018	Director, Power Policy Bureau, Energy Policy and Planning Office

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Aug. 2019 - Present	Director/ Member of the Risk Management Committee, IRPC Public Company Limited
---------------------	--

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Apr. 2019 - Present	Director General, Energy Policy and Planning
---------------------	--

Mr. Jumpol Sumpaopol

Age: 67 Years

Appointed Positions:

Independent Director/ Member of the Audit Committee

Date of being an Independent Director

16 October 2019

Date of being the Member of the Audit Committee

16 October 2019

Years of being a director

1 Year 2 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of sciences Industrial Education and Technology, Civil Engineering, King Mongkut's University of Technology Thonburi
- Bachelor of Engineering, Civil Engineering, King Mongkut's University of Technology Thonburi
- Certificate of Public and Private Management Program, Notional Institute of Development Administration
- Diploma of Metropolitan Leader, Bangkok Metropolitan and King Prajadhipok's Institute
- Certificate of New Government Budget Management, University of California Los Angeles (UCLA)
- Certificate of Infrastructure and System Development Traffic and Transportation
- Certificate of Corporate Governance for Director and Senior Executive of State Enterprises and Public Organization (Class 11), King Prajadhipok's Institute
- Certificate of Senior Executive Management of Metropolitan Development "Mahanakhon" (Class 1), Bangkok Metropolitan
- Certificate of Systematic Problem Solving and Decision Making: SPSPDM, Office of the Public Sector Development Commission (OPDC)
- The Rule of Law and Democracy (Class 3), College Constitution Court
- Business Revolution and Innovation Network "BRAINS" (Class 2), The Federation of Thai industries (F.T.I.)
- Certificate Health Ambassador (Class 1), Chulabhorn Royal Academy
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 136/2012, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Apr. 2013 - 2016	Deputy Governor of Bangkok, Bangkok Metropolitan Administration
2011 - 2013	Board of Directors, Metropolitan Electricity Authority (MEA)
2011 - 2013	Deputy Permanent Secretary for Bangkok, Bangkok Metropolitan Administration
Oct. 2009 - Sep. 2011	Director General Public works Department, Bangkok Metropolitan Administration

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Oct. 2019 - Present	Independent Director/ Member of the Audit Committee, IRPC Public Company Limited
Feb. 2017 - Present	Independent Director/ Chairman / Chairman of Nomination and Remuneration committee, Stonehenge Inter Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

2007 - Present	University Promotion Committee Board, King Mongkut's University of Technology Thonburi
----------------	---

Mr. Noppadol Pinsupa

Age: 56 Years

Resigned from President and Chief Executive Officer

1 December 2020

Date of being a President and Chief Executive Officer

1 December 2019

Years of being a President and Chief Executive Officer

1 year 11 months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Electrical), Chulalongkorn University
- Master of Engineering (Electrical), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14/2019, Thailand Energy Academy
- Diploma, National Defence College, The National Defence Course, Class 60, Thailand National Defence College
- TIJ Executive Program on the Rule of Law and Development (RoLD Program), 2017, Thailand Institute of Justice (TIJ)
- Leadership Program, Class 22/2016, Capital Market Academy, The Stock Exchange of Thailand
- G - 20Y Summit 2015, France
- Mitsui - Harvard Business School HBS - Global Management Academy 2015 Japan and USA
- Program for Senior Executive on Justice Administration Batch, Class 19/2014, Judicial Training Institute
- Leadership Development Program III, PTT Leadership and Learning Institute
- Breakthrough Program for Senior Executives International Leading Business School (IMD) Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)
- Financial Statement for Directors, PTT Public Company Limited
- The Role of the Board in IT Governance, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 146/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Dec. 2020 - Jan. 2021	Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
Feb. 2019 - Nov. 2020	Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited
Aug. 2019 - Nov. 2020	Deputy Chairman, PTT Energy Solutions Company Limited
May 2019 - Nov. 2020	Chairman, IRPC Oil Company Limited
Apr. 2019 - Jan. 2021	Chairman, IRPC Polyol Company Limited
Mar. 2019 - Nov. 2020	Director, IRPC Oil Company Limited
Mar. 2019 - Dec. 2020	Chairman, IRPC A&L Company LimitedSok
Mar. 2019 - Nov. 2020	Chairman, IRPC Technology Company Limited
Mar. 2019 - Dec. 2020	Chairman, iPolymer Company Limited
Feb. 2019 - Nov. 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, IRPC Public Company Limited
Jan. 2019 - Nov. 2020	Director, UBE Chemicals (Asia) Public Company Limited
Feb. 2019 - Aug. 2019	Chairman, PTT Energy Solutions Company Limited
Oct. 2017 - Jan. 2019	Chairman, PTT Global LNG Company Limited
2017	Chairman, PTT LNG Company Limited

Oct. 2015 - Jan. 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
2015 - 2016	Executive Vice President working on Acting Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
Oct. 2015 - Jan. 2019	Director/ Member of the Risk Management Committee, Thailoil Public Company Limited
2014 - 2018	Chairman, PTT Natural Gas Distribution Company Limited
Oct. 2014 - Sep. 2015	Executive Vice President, PTT, working on a secondment as President, Global Power Synergy Public Company Limited

Current Position**Board Member/ Management in Listed Company - The Stock Exchange of Thailand**

Jan. 2021 - Present	Director/ Member of the Nomination and Remuneration Committee
Dec. 2020 - Present	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present	Chairman, PTT Digital Solution Company Limited
Jan. 2020 - Present	Advisor, Chulalongkorn University Alumni Association
May 2017 - Present	Director, Power For Sustainable Future Foundation

Mr. Chawalit Tippawanich

Age: 58 Years

Appointed Positions:

President and Chief Executive Officer

Date of being President and Chief Executive Officer

1 December 2020

Years of being President and Chief Executive Officer

1 Month

Possession of IRPC shares (%)

No. of share "IRPC": 450,000 Share Possession: 0.00220%

Family relationship within the Company, major shareholder or subsidiaries

None

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, IRPC Public Company Limited
2018 - Present	Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited

Education/ Training

- Bachelor of Engineering in Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang
- Master of Engineering in Industrial Engineering Management, Asian Institute of Technology
- Advance Management Program (AMP 187) - Harvard Business School, Executive Education, USA
- GE Energy Customer Executive Leadership Program (GE:PTT Executive Leadership) - GE Global Learning Crotonville Leadership Institute, USA
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives (Batch 23)
- Top Executives in the Energy Education Program (Batch 12), Thailand Energy Academy
- The Joint State-Private Sector Course (Batch 5), Police College
- Leadership Development Program III (Batch 2), PTT Leadership and Learning Institute
- Director Certification Program (DCP), Class 152/2011, Thai Institute of Directors Association (IOD)

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present	Chairman, IRPC Polyol Company Limited
Dec. 2020 - Present	Chairman, IRPC A&L Company Limited
Dec. 2020 - Present	Chairman, IRPC Technology Company Limited
Dec. 2020 - Present	Deputy Chairman, PTT Energy Solutions Company Limited
Dec. 2020 - Present	Chairman, iPolymer Company Limited
Dec. 2020 - Present	Director, UBE Chemicals (Asia) Public Company Limited
Jan. 2021 - Present	Council of Trustees, Petroleum Institute of Thailand
Dec. 2020 - Present	Council Member/ Executive Committee, Thailand Business Council for Sustainable (TBCSD)
Dec. 2020 - Present	Advisory Committee of the Petroleum and Petrochemical College, Chulalongkorn University
Jul. 2020 - Present	Director, The Federation of Thai Industries

Work experience within the past 5 years

Apr. 2019 - Nov. 2020	Director, Glow Energy Public Company Limited
Mar. 2019 - Nov. 2020	Director, Glow Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow SPP 2 Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow SPP 3 Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow IPP 2 Holding Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow SPP 11 Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow IPP Co., Ltd.
Jan. 2019 - Nov. 2020	Director, Ratchaburi Power Company Limited
Nov. 2018 - Nov. 2020	Director, Xayaburi Power Company Limited
Oct. 2018 - Nov. 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer, Global Power Synergy Public Company Limited
2017 - 2018	Executive Vice President, Downstream Business Group Alignment, PTT Plc. secondment in the position of Senior Executive Vice President-Organization Effectiveness of Thailoil Plc.
2015 - 2016	Executive Vice President, Downstream Business Group Alignment, PTT Plc. secondment in the position of President of HMC Polymers Co., Ltd.
2013 - 2015	Executive Vice President, Business Development and Project Management, Petrochemicals and Refining Business Unit, PTT Plc.

General Nattaphon Narkphanit

Age: 59 Years

Resigned

1 October 2020

Date of being a director

24 June 2019

Date of being the Member of the Corporate Governance Committee

24 June 2019

Years of being a director

1 Year 3 Months

Possession of IRPC shares (%)

No. of share "IRPC": 450,000 Share Possession: 0.00220%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Armed Forces Preparatory School, Class 20
- Chulachomklao Royal Military Academy, Class 31
- Infantry Officer Basic Course, Infantry School, Class 74
- Infantry Officer Advance Course, Infantry School, Class 52
- Command and General Staff College, Class 71
- Asia Pacific Security Course, Security Studies Institute, Hawaii, USA
- Diploma, National Defence College, The National Defence College, Class 59, Thailand National Defence College

Work experience within the past 5 years

Jun. 2019 - Oct. 2020	Independent Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
2017 - 2018	Chief of Staff, Royal Thai Army
Sep. 2016 - May 2019	Member of the National Legislative Assembly
2016 - 2017	Deputy Chief of Staff, Royal Thai Army
2015 - 2016	Directing General of Directorate of Operations

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Dec. 2019 - Present	Director, Thanachart Bank Public Company Limited
May 2019 - Present	Director, TMB Bank Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Oct. 2020 - Present	Secretary General of the National Security Council
2018 - Present	Deputy Commander in Chief, Royal Thai Army and Assistant Director of Internal Security Operation Command

Mr. Worawat Pitayasiri

Age: 54 Years

Resigned

1 December 2020

Date of being a director

19 September 2018

Date of being the Member of the Risk Management committee

19 September 2018

Years of being a director

2 Years 2 Months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present	Director, Xayaburi Power Company Limited
Dec. 2020 - Present	Director, Ratchaburi Power Company Limited
Dec. 2020 - Present	Director, Glow Energy Public Company Limited
Dec. 2020 - Present	Director, Glow Co., Ltd.
Dec. 2020 - Present	Director, Glow SPP 2 Co., Ltd.
Dec. 2020 - Present	Director, Glow SPP 3 Co., Ltd.
Dec. 2020 - Present	Director, Glow IPP 2 Holding Co., Ltd.
Dec. 2020 - Present	Director, Glow SPP 11 Co., Ltd.
Dec. 2020 - Present	Director, Glow IPP Co., Ltd.

Education/ Training

- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- Master of Business Administration (M.B.A.), Thammasat University
- Asia Petrochemical Industry Conference (APIC) Class 2/2017, Japan Petrochemicals Industry Association
- PTT Group VP Leadership Development Program, PTT Public Company Limited
- Senior Executive Program (SEP), Class 26/2012, Sasin Graduate Institute of Business Administration, Chulalongkorn University
- Advanced Certificate Course Politics and Governance in Democratic Systems for Executives, Class 22, King Prajadhipok's Institute
- NIDA - Wharton Executive Leadership Program, Class 2009, The Wharton School of the University of Pennsylvania, USA
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 158/2012, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Sep. 2018 - Nov. 2020	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited
Sep. 2018 - Nov. 2020	Director/ Member of the Risk Management committee, IRPC Public Company Limited
Mar. 2020 - Nov. 2020	Director, Alpha Com Company Limited
Feb. 2020 - Nov. 2020	Chairman, PTT RAISE Company Limited
Oct. 2019 - Nov. 2020	Chairman, PTT Digital Solution Company Limited
Nov. 2019 - Feb. 2020	Director, InnoSpace (Thailand) Company Limited
Jun. 2019 - Aug. 2019	Director, PTT Energy Solutions Company Limited
May 2018 - Nov. 2018	Chairman, PTT Tank Terminal Company Limited
Oct. 2016 - Sep. 2018	Executive Vice President, Downstream Business Group Planning, PTT Public Company Limited
Mar. 2016 - Sep. 2016	Executive Vice President, Downstream Business Group Collaboration, PTT Public Company Limited
Jul. 2015 - Mar. 2016	Executive Vice President, PTT Public Company Limited
Jul. 2015 - Mar. 2016	President, PTT MCC Biochem Company Limited

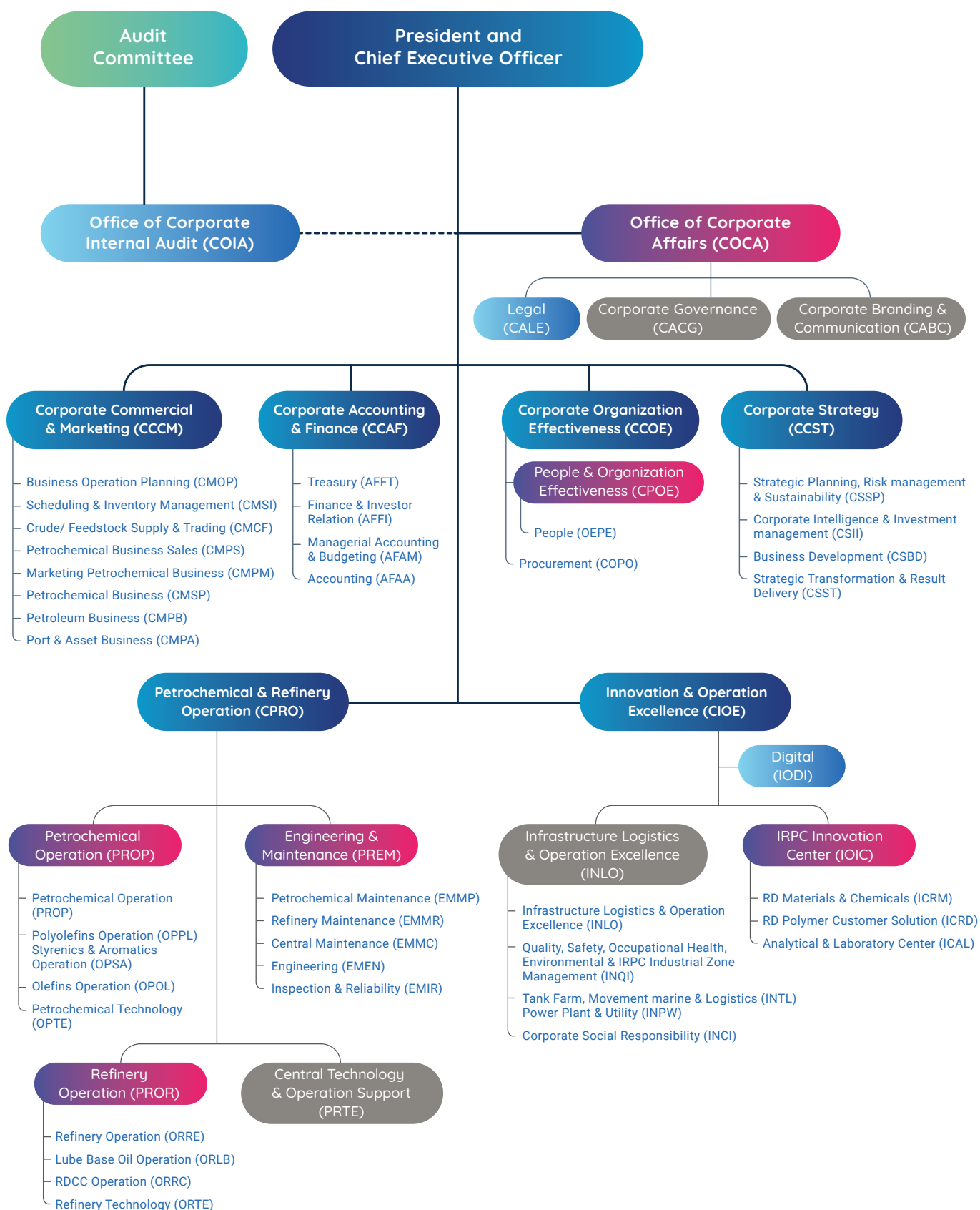
Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present	Director/ Member of the Risk Management Committee, President and Chief Executive Officer, Global Power Synergy Public Company Limited
Dec. 2020 - Present	Senior Executive Vice President, PTT Public Company Limited, secondment as President and Chief Executive Officer, Global Power Synergy Public Company Limited

Organizational Structure

As of January 1, 2021



Management Team



1. Mr. Chawalit Tippawanich

President and Chief Executive Officer

2. Mr. Veerawat Srinoradithlert

Senior Executive Vice President, Corporate Organization Effectiveness/ Acting Senior Executive Vice President, Innovation and Operation Excellence

3. Mrs. Nidcha Jirametthanakij

Senior Executive Vice President, Corporate Accounting & Finance

4. Mr. Somkiat Lertritpuwadol

Senior Executive Vice President, Corporate Strategy

5. Miss Wanida Utaisomnapa

Senior Executive Vice President, Corporate Commercial and Marketing

6. Mr. Woravuth Sivapetranart

Senior Executive Vice President, Petrochemical and Refinery Operation

Management Team, IRPC Public Company Limited

Mr. Chawalit Tippawanich

Age: 58 Years

Appointed Positions:

President and Chief Executive Officer

Date of being President and Chief Executive Officer

1 December 2020

Years of being President and Chief Executive Officer

1 Month

Possession of IRPC shares (%)

No. of share "IRPC": 450,000 Share Possession: 0.00220%

Family relationship within the Company, major shareholder or subsidiaries

None

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, IRPC Public Company Limited
2018 - Present	Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited

Education/ Training

- Bachelor of Engineering in Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang
- Master of Engineering in Industrial Engineering Management, Asian Institute of Technology
- Advance Management Program (AMP 187) - Harvard Business School, Executive Education, USA
- GE Energy Customer Executive Leadership Program (GE:PTT Executive Leadership) - GE Global Learning Crotonville Leadership Institute, USA
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives (Batch 23)
- Top Executives in the Energy Education Program (Batch 12), Thailand Energy Academy
- The Joint State-Private Sector Course (Batch 5), Police College
- Leadership Development Program III (Batch 2), PTT Leadership and Learning Institute
- Director Certification Program (DCP), Class 152/2011, Thai Institute of Directors Association (IOD)

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present	Chairman, IRPC Polyol Company Limited
Dec. 2020 - Present	Chairman, IRPC A&L Company Limited
Dec. 2020 - Present	Chairman, IRPC Technology Company Limited
Dec. 2020 - Present	Deputy Chairman, PTT Energy Solutions Company Limited
Dec. 2020 - Present	Chairman, iPolymer Company Limited
Dec. 2020 - Present	Director, UBE Chemicals (Asia) Public Company Limited
Jan. 2021 - Present	Council of Trustees, Petroleum Institute of Thailand
Dec. 2020 - Present	Council Member/ Executive Committee, Thailand Business Council for Sustainable (TBCSD)
Dec. 2020 - Present	Advisory Committee of the Petroleum and Petrochemical College, Chulalongkorn University
Jul. 2020 - Present	Director, The Federation of Thai Industries

Work experience within the past 5 years

Apr. 2019 - Nov. 2020	Director, Glow Energy Public Company Limited
Mar. 2019 - Nov. 2020	Director, Glow Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow SPP 2 Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow SPP 3 Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow IPP 2 Holding Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow SPP 11 Co., Ltd.
Mar. 2019 - Nov. 2020	Director, Glow IPP Co., Ltd.
Jan. 2019 - Nov. 2020	Director, Ratchaburi Power Company Limited
Nov. 2018 - Nov. 2020	Director, Xayaburi Power Company Limited
Oct. 2018 - Nov. 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer, Global Power Synergy Public Company Limited
2017 - 2018	Executive Vice President, Downstream Business Group Alignment, PTT Plc. secondment in the position of Senior Executive Vice President-Organization Effectiveness of Thaioil Plc.
2015 - 2016	Executive Vice President, Downstream Business Group Alignment, PTT Plc. secondment in the position of President of HMC Polymers Co., Ltd.
2013 - 2015	Executive Vice President, Business Development and Project Management, Petrochemicals and Refining Business Unit, PTT Plc.

Mr. Woravuth Sivapetranart

Age: 57 Years

Appointed Positions:

Senior Executive Vice President, Petrochemical and Refinery Operation

Date of being a Senior Executive Vice President, Petrochemical and Refinery Operation

1 March 2019

Years of being a Senior Executive Vice President, Petrochemical and Refinery Operation

1 Year 10 Months

Possession of IRPC shares (%)

No. of share "IRPC": 279,351 Share Possession: 0.00137%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Science (Chemistry), Prince of Songkla University
- Master of Business Administration (Business Administration), Chulalongkorn University
- MINI MBA Thammasat University
- GE Global Customer Summit, ASEAN Executive Program, Crotonville, USA
- Leadership Development Program III, PTT Leadership and learning Institute
- Senior Executive Program (SEP), Class 32, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Advanced Management Program 3 (AMP3), PTT Leadership and learning Institute
- Executive Energy Management Program (EEM), Season 3, Ministry of Energy
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 281/2019, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Jan. 2019 - Feb. 2019	Senior Executive Vice President, Petrochemical & Refinery Business Unit, IRPC Public Company Limited
Jan. 2017 - Dec. 2018	Executive Vice President, Refinery and Petrochemical Operation, IRPC Public Company Limited
2014 - 2016	Executive Vice President, Technology & Operational Excellence, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Mar. 2019 - Present	Senior Executive Vice President, Petrochemical and Refinery Operation, IRPC Public Company Limited
---------------------	--

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Mar. 2019 - Present	Director, WHA Industrial Estate Rayong Company Limited
Mar. 2019 - Present	Director, IRPC Clean Power Company Limited
Mar. 2017 - Present	Director, IRPC Polyol Company Limited
Apr. 2017 - Present	Director, IRPC A&L Company Limited

Mr. Somkiat Lertritpuwadol

Age: 58 Years

Appointed Positions:

Senior Executive Vice President, Corporate Strategy

**Date of being a Senior Executive Vice President,
Corporate Strategy Starting Date**

1 January 2019

**Years of being a Senior Executive Vice President,
Corporate Strategy Starting Date**

2 Years

Possession of IRPC shares (%)

No. of share "IRPC": 411,480

(Self: 395,580 Share Possession: 0.00194%)

(Spouse: 15,900 Share Possession: 0.00008%)

**Family relationship within the Company, major shareholder
or subsidiaries**

None

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Jul. 2020 - Present	Chairman, Mytex Polymers (Thailand) Company
Mar. 2019 - Present	Director, IRPC Clean Power Company Limited
Nov. 2018 - Present	Director, iPolymer Company Limited
Jul. 2018 - Present	Director, WHA Industrial Estate Rayong Company Limited
Jan. 2016 - Present	Acting Managing Director, IRPC OIL Company Limited
Jan. 2016 - Present	Acting Managing Director, IRPC A&L Company Limited
Dec. 2014 - Present	Director, IRPC A&L Company Limited
Feb. 2012 - Present	Director, IRPC Oil Company Limited

Education/ Training

- Bachelor of Science (Chemistry), Ramkhamhaeng University
- Master of Business Administration, Asian University
- Mini MBA, Thammasart University
- NIDA Executive Leadership Program - Wharton University of Pennsylvania
- Advanced Certificate Course in Public Economics Management for Executives, Class 11, King Prajadhipok's Institute
- The Executive Program in Energy Literacy for a Sustainable Future (TEA) Class 9, Thailand Energy Academy
- Capital Market Academy Leader Program, Class 285/2019, Capital Market Academy, The Stock Exchange of Thailand
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Risk Management Program for Corporate Leaders (RCL), Class 19/2020, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 36/2018, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 224/2016, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 111/2014, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Dec. 2014 - Feb. 2019	Director UBE Chemical (Asia) Public Company Limited
Jan. 2016 - Dec. 2018	Senior Executive Vice President, Corporate Commercial and Marketing, IRPC Public Company Limited
Feb. 2015 - Jun. 2017	Director, IRPC PCC Company Limited
Jan. 2016 - Dec. 2016	Acting Executive Vice President, Corporate Marketing, IRPC Public Company Limited
Feb. 2012 - Jul. 2016	Director, Thai ABS Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2019 - Present	Senior Executive Vice President, Corporate Strategy, IRPC Public Company Limited
Jan. 2019 - Present	Secretary of the Risk Management Committee, IRPC Public Company Limited

Mrs. Nidcha Jirametthanakij

Age: 58 Years

Appointed Positions:

Senior Executive Vice President, Corporate Accounting & Finance

**Date of being a Senior Executive Vice President,
Corporate Accounting & Finance Starting Date**

1 October 2018

**Years of being a Senior Executive Vice President,
Corporate Accounting & Finance Starting Date**

2 Years 3 Months

Possession of IRPC shares (%)

No. of share "IRPC": 250,000 Share Possession: 0.00122%

**Family relationship within the Company, major shareholder
or subsidiaries**

None

Education/ Training

- Bachelor of Accounting (Accounting), Thammasat University
- Master of Business Administration, Kasetsart University
- Executive Development Program by Fiscal Policy Research Institute Foundation, Kingdom of Thailand in cooperation with Maxwell School of Syracuse University
- Advanced Management Program (AMP) 2 - People Management
- CFOs Orientation Course for New IPOs, The Stock Exchange of Thailand (SET)
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 206/2015, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2018	Executive Vice President, PTT Public Company Limited, Secondment to PTT Oil and Retail Business Company Limited
2016 - 2018	Vice President, Group Financial Planning, PTT Public Company Limited
2013 - 2016	Acting Managing Director, PTT Regional Treasury Center Pte. Ltd.

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Oct. 2018 - Present	Senior Executive Vice President, Corporate Accounting & Finance, IRPC Public Company Limited
Mar. 2018 - Present	Executive Vice President, Corporate Finance & Accounting, PTT Public company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Jul. 2020 - Present	Director, Mytex Polymers (Thailand) Company
Dec. 2018 - Present	Director, IRPC A&L Company Limited
Nov. 2018 - Present	Director, iPolymer Company Limited
Nov. 2018 - Present	Director, IRPC Oil Company Limited
Nov. 2018 - Present	Director, IRPC Polyol Company Limited
Nov. 2018 - Present	Director, WHA Industrial Estate Rayong Company Limited
Oct. 2018 - Present	Director, UBE Chemicals (Asia) Public Company Limited
Oct. 2018 - Present	Director, IRPC Clean Power Company Limited

Miss Wanida Utaisomnapa

Age: 54 Years

Appointed Positions:

Senior Executive Vice President, Corporate Commercial and Marketing

**Date of being a Senior Executive Vice President,
Corporate Commercial and Marketing Starting Date**

1 January 2019

**Years of being a Senior Executive Vice President,
Corporate Commercial and Marketing Starting Date**

2 Years

Possession of IRPC shares (%)

No. of share "IRPC": 210,440 Share Possession: 0.00103%

**Family relationship within the Company, major shareholder
or subsidiaries**

None

Education/ Training

- Bachelor of Business Administration
(Finance with second class honors), Bangkok University
- Master of Business Administration (Finance and Marketing),
National University, San Diego, USA
- PLI Leadership Development Program, IMD, Singapore
- Advance Management Program, DDI
- Leadership/ The 7 HABITS of Highly Effective People,
PacRim/ FranklinCovey
- PTT-HBS Leadership Development Program Class 1,
Harvard Business School, India&China
- Refinery Economics, Solomon Associates, Singapore
- Advance Price Risk Management, Invincible Energy, Singapore
- The Board's Role in Strategic Formulation,
Governance Matters Australia
- The Role of the Board in IT Governance, Year 2020,
Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Nov. 2018 - Mar. 2019	Director, IRPC Clean Power Company Limited
Oct. 2018 - Dec. 2018	Executive Vice President, Strategic Transformation and Result Delivery Office, IRPC Public Company Limited
Feb. 2015 - Dec. 2018	Secretary of the Risk Management Committee, IRPC Public Company Limited
Jan. 2015 - Dec. 2018	Executive Vice President, Corporate Business Planning, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2019 - Present	Senior Executive Vice President, Corporate Commercial and Marketing, IRPC Public Company Limited
---------------------	--

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Jul. 2020 - Present	Director, Mytex Polymers (Thailand) Company
Jul. 2019 - Present	Director, Guangzhou Saiju Performance Polymer Company Limited
Mar. 2019 - Present	Director, IRPC A&L Company Limited
Apr. 2019 - Present	Director, IRPC Polyol Company Limited
Jan. 2019 - Present	Director, UBE Chemicals (Asia) Public Company Limited
Nov. 2018 - Present	Director, IRPC OIL Company Limited

Mr. Veerawat Srinoradithlert

Age: 58 Years

Appointed Positions:

Executive Vice President, Corporate Organization Effectiveness/ Acting Senior Executive Vice President, Innovation and Operation Excellence

Date of being a Senior Executive Vice President, Corporate Organization Effectiveness Starting Date

1 March 2019

Years of being a Senior Executive Vice President, Corporate Organization Effectiveness Starting Date

2 Years

Date of being an Acting Senior Executive Vice President, Innovation and Operation Excellence

1 January 2020

Years of being an Acting Senior Executive Vice President, Innovation and Operation Excellence

1 Year

Possession of IRPC shares (%)

No. of share "IRPC": 10,579 Share Possession: 0.00005%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Chemical Engineering), King Mongkut's University of Technology Thonburi
- Master of Business Administration, Burapha University
- Mini MBA, Thammasat University
- Executive Development Program
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2012 - Feb. 2019 Executive Vice President, Engineering & Maintenance, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2020 - Present	Acting Senior Executive Vice President, Innovation and Operation Excellence, IRPC Public Company Limited
Mar. 2019 - Present	Senior Executive Vice President, Corporate Organization Effectiveness

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

May. 2020 - Present	Director, Rayong Acetylene Company Limited
Apr. 2020 - Present	Director, IRPC OIL Company Limited
Oct. 2019 - Present	Director, IRPC Technology Company Limited

Miss Arisara Suthasut

Age: 45 Years

Appointed Positions:

Executive Vice President, Corporate Affairs and Company Secretary/ Acting Executive Vice President, Corporate Sustainability Management

Date of being an Executive Vice President, Corporate Affairs and Company Secretary

1 October 2019

Years of being an Executive Vice President, Corporate Affairs and Company Secretary

1 Year 3 Months

Date of being an Acting Executive Vice President, Corporate Sustainability Management

1 January 2020

Years of being an Acting Executive Vice President, Corporate Sustainability Management

1 Year

Possession of IRPC shares (%)

No. of share "IRPC": 2,200 Share Possession: 0.00001%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Chemical Engineering), Kasetsart University
- Master of Science, Petrochemical Technology, The Petroleum and Petrochemical College, Chulalongkorn University
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Company Secretary Program (CSP) , Class 106/2020, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

2018 - Sep. 2019	Director, Corporate Management Department, PTT Tank Terminal Company Limited
2013 - 2019	Division Manager, Downstream Business, PTT Public company Limited
2013 - 2017	Division Manager, Business Development Department, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2020 - Present	Acting Executive Vice President, Corporate Sustainability Management, IRPC Public Company Limited
Oct. 2019 - Present	Executive Vice President, Corporate Affairs and Company Secretary, IRPC Public Company Limited
2019 - Present	Department Manager, Chief Operation Office Downstream Petroleum Business, PTT Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Oct. 2019 - Present	Director, Technology IRPC Company Limited
Oct. 2019 - Present	Director, Sarn Palung Social Enterprise Company Limited

Mr. Noppadol Pinsupa

Age: 56 Years

Resigned from President and Chief Executive Officer

1 December 2020

Date of being a President and Chief Executive Officer

1 December 2019

Years of being a President and Chief Executive Officer

1 year 11 months

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering (Electrical), Chulalongkorn University
- Master of Engineering (Electrical), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14/2019, Thailand Energy Academy
- Diploma, National Defence College, The National Defence Course, Class 60, Thailand National Defence College
- TIJ Executive Program on the Rule of Law and Development (RoLD Program), 2017, Thailand Institute of Justice (TIJ)
- Leadership Program, Class 22/2016, Capital Market Academy, The Stock Exchange of Thailand
- G - 20Y Summit 2015, France
- Mitsui - Harvard Business School HBS - Global Management Academy 2015 Japan and USA
- Program for Senior Executive on Justice Administration Batch, Class 19/2014, Judicial Training Institute
- Leadership Development Program III, PTT Leadership and Learning Institute
- Breakthrough Program for Senior Executives International Leading Business School (IMD) Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)
- Financial Statement for Directors, PTT Public Company Limited
- The Role of the Board in IT Governance, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 146/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)

Work experience within the past 5 years

Dec. 2020 - Jan. 2021	Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
Feb. 2019 - Nov. 2020	Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited
Aug. 2019 - Nov. 2020	Deputy Chairman, PTT Energy Solutions Company Limited
May 2019 - Nov. 2020	Chairman, IRPC Oil Company Limited
Apr. 2019 - Jan. 2021	Chairman, IRPC Polyol Company Limited
Mar. 2019 - Nov. 2020	Director, IRPC Oil Company Limited
Mar. 2019 - Dec. 2020	Chairman, IRPC A&L Company LimitedSok
Mar. 2019 - Nov. 2020	Chairman, IRPC Technology Company Limited
Mar. 2019 - Dec. 2020	Chairman, iPolymer Company Limited
Feb. 2019 - Nov. 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, IRPC Public Company Limited
Jan. 2019 - Nov. 2020	Director, UBE Chemicals (Asia) Public Company Limited
Feb. 2019 - Aug. 2019	Chairman, PTT Energy Solutions Company Limited
Oct. 2017 - Jan. 2019	Chairman, PTT Global LNG Company Limited
2017	Chairman, PTT LNG Company Limited

Oct. 2015 - Jan. 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
2015 - 2016	Executive Vice President working on Acting Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
Oct. 2015 - Jan. 2019	Director/ Member of the Risk Management Committee, Thailoil Public Company Limited
2014 - 2018	Chairman, PTT Natural Gas Distribution Company Limited
Oct. 2014 - Sep. 2015	Executive Vice President, PTT, working on a secondment as President, Global Power Synergy Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present	Director/ Member of the Nomination and Remuneration Committee
Dec. 2020 - Present	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present	Chairman, PTT Digital Solution Company Limited
Jan. 2020 - Present	Advisor, Chulalongkorn University Alumni Association
May 2017 - Present	Director, Power For Sustainable Future Foundation

Mr. Surachai Toaphicharttrakul

Age: 54 Years

Appointed Positions:

Vice President, Corporate Accounting and Finance

Date of being a Vice President, Corporate Accounting and Finance Starting Date

1 August 2013

Possession of IRPC shares (%)

No. of share "IRPC": 14,719 Share possession: 0.00007%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Business Administration (Accounting), Ramkhamhaeng University
- Master of Business Administration (Accounting for Planning and Control) Kasetsart University
- Mini MBA: Executive Leadership Development Program, Faculty of Commerce and Accountancy, Thammasat University
- Advanced Management Program (AMP) 2 - People Management
- Lead Management Program - McKinsey Academy
- Digital Leadership Acceleration Program - BCG

Work experience within the past 5 years

1997 - 2013 Division Manager, Financial Statement and Accounting Policy, Managerial Accounting Department, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

2013 - Present Vice President, Accounting, IRPC Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

2013 - Present Director, IRPC Technology Company Limited
2013 - Present Director, Rakpasak Company Limited

Mr.Thammasak Panyowatkool

Age: 55 Years

Appointed Positions:

Executive Vice President, Procurement Department

Date of being an Executive Vice President, Procurement Department

2 January 2021

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Science (Accounting), Kasetsart University
- Mini MBA: Executive Leadership Development Program Faculty of Commerce and Accountancy, Thammasat University
- The Manager Program, Management and Psychology Institute, Class 47
- The Board's Role in Strategic Formulation, Governance Matters Australia

Work experience within the past 5 years

2016 - 2020 Executive Vice President, Officiate as Office of Internal Audit Manager and Secretary of Audit Committee, IRPC Public Company Limited
2014 - Feb. 2020 Director, Rayong Acetylene Company Limited
2014 - Mar. 2017 Director, IRPC Technology Company Limited
2014 - 2015 Executive Vice President, Corporate Accounting, IRPC Public Company Limited
2013 - 2014 Acting Executive Vice President, Corporate Accounting, IRPC Public Company Limited
2010 - 2013 Vice President, Managerial Accounting Department, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present Executive Vice President, Procurement Department, IRPC Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

None

Mr. Prasitsak Swasduang

Age: 59 Years

Appointed Positions:

Vice President, Office Of Corporate Internal Audit and Secretary of Audit Committee

Date of being a Vice President, Office Of Corporate Internal Audit and Secretary of Audit Committee

1 January 2021

Possession of IRPC shares (%)

No. of share "IRPC": 70,000 Share Possession: 0.00034%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Science in Chemistry, Chiang Mai University
- MINI MBA - Thammasat University
- Finance for Non-financial Executive - Thammasat University
- IT audit for Non-IT Auditor Masterclass by The National Science and Technology Development Agency (NSTDA)

Work experience within the past 5 years

Jan. 2017 - Dec. 2020 Division Manager of Strategy Information System Internal Audit Division

Jan. 2007 - Dec. 2019 Division Manager of Operation, QSHE & Subsidiary Companies Internal Audit Division

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present Vice President, Office of Corporate Internal Audit and Secretary of Audit Committee, IRPC Public Company Limited

Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand

None

Report of the Audit Committee --- +

Dear Shareholders,

The Audit Committee of IRPC Public Company Limited is comprised of 3 independent directors who are all qualified, knowledgeable, proficient with diversified experiences in energy and engineering business, finance and accounting, and management. The current Audit Committee is chaired by Mr. Somnuk Bomrungsalee, with Miss Siriwan Chierapong and Mr. Jumpol Sumpaopol as members.

The Audit Committee has executed duties assigned by IRPC Board of Directors and the Charter of the Audit Committee, in conformity with the announcements of the Securities Exchange of Thailand and the Securities and Exchange Commission, focusing on compliance with good corporate governance principles and related laws and regulations. The Committee's oversight included the review of the Company's suitable, efficient and effective internal control and internal audit systems.

In 2020, the Committee held a total of 11 meetings, including meetings with the Management, internal auditor, and external auditor on related agendas. Significant performance executed can be summarized as follows:

1. Financial Report Review

The Audit Committee reviewed important information of 2020 quarterly and annual financial statements including connected transactions and potential conflict of interest items. The Auditor and IRPC's finance and accounting management were invited to the Audit Committee's meetings to explain and answer questions regarding the accuracy and completeness of financial statements, significant accounting adjustments, disclosure sufficiency, and the auditor's remarks. The Audit Committee settled that IRPC's financial statements presented all materially significant entries according to financial reporting standards.

In addition, the Audit Committee and the Auditor also met without management to discuss audit plans, remarks, impacts from newly enforced accounting standards, independence, significant risks, and key audit matters.

2. Risk Management Review

The Audit Committee reviewed risk management audit reports prepared by the Internal Audit and the Auditor, and acknowledged corporate risk management reports prepared by the Risk Management Committee, which oversees risk in particular ranging from risk management policy and framework approval, risk management monitoring, and risk management measure approval. Corporate risk management report was regularly submitted for Board's acknowledgment, ensuring that IRPC's risk management was sufficient and appropriate for its business context and that IRPC has successfully contained all risks within its tolerance level.

3. Internal Control System Review

The Audit Committee assessed the adequacy and suitability of IRPC's internal control system for rational confidence of its efficiency and effectiveness, enabling the Company to achieve its goals and objectives. The Audit Committee reviewed the audit report of the internal auditor and the Auditor and reports monitoring the implementation of audit suggestions. The Management was to complete the Control Self-Assessment formulated in conformity with the Committee of Sponsoring Organizations of the Treadway Commission (COSO)'s Internal Control Framework to assess risk management of the internal control system, financial report creditability, of which results reasonably affirmed adequate and sufficient internal control system for business operations.

4. Internal Audit Review and Oversight

The Audit Committee has governed the Internal Audit to be independent with direct report to the Committee as stipulated in the annually reviewed Audit Committee Charter. The Committee also assessed the operations of the Internal Audit to comply with the approved audit policy and plan, as well as addressed audit issues and provided recommendations beneficial to efficiency enhancement of the internal audit system. Audit progress was regularly monitored.

The Audit Committee placed continuous emphasis on internal audit personnel development by promoting knowledge exchange with other PTT Group companies and encouraging internal audit certifications to elevate their knowledge and capabilities as well as internal audit work quality on an international par. The introduction of an information technology system to the internal audit implementation was fostered through the launch of Audit Management System or iAudit in 2020 to boost the efficiency and effectiveness of the internal audit work.

5. Corporate Governance Review

Business operations ethics is the key for the Audit Committee in reviewing and commenting on significant connected transactions to prevent conflict of interest. The Audit Committee, therefore, must be ensured that these transactions were reasonably executed at arm's length with appropriate market price references and the same conditions as other outsiders. The complaint filing and whistleblowing processes must be in line with good corporate governance principles with thorough information disclosure according to the regulations of the Securities Exchange of Thailand. The Committee supported IRPC and subsidiaries to recertify their membership of Thailand's Private Sector Collective Action Coalition Against Corruption (CAC).

6. Compliance Review

The Audit Committee reviewed and supervised IRPC's operations to comply with laws on securities and exchange, regulations of the Stock Exchange of Thailand, industrial and environmental laws, including other laws related to the Company's operations. The Audit Committee concluded that the Company is equipped with the internal control process ensuring effective compliance mechanisms.

7. 2020 Independent Auditor Nomination

The Audit Committee is tasked with the consideration and nomination of an Auditor together with proposing their audit fees and putting forward a motion to terminate the Auditor, to ensure their independence. Candidates were selected from their qualifications and professional expertise. As deemed suitable, the Audit Committee resolved to nominate Deloitte Touche Tohmatsu Auditing Co., Ltd. as the Auditor to the Board of Directors prior to the approval of shareholders. The Audit Committee also explored the use of other services provided by this Auditor to assure their independence.

In 2020, the Audit Committee independently performed its duties with great care and prudence, provided suggestions and recommendations beneficial to IRPC to ensure that the Company's financial statements were correct, complete, and credible. Its oversight including corporate governance, compliance, risk management and internal controls, ensuring their adequacy, efficiency and effectiveness. The tasks functioned by the Audit Committee were for the best benefits of the Company and its sustainable growth.



(Mr. Somnuk Bomrungsalee)
Chairman of the Audit Committee

Message from Chairman of the Corporate Governance Committee _____ +

Dear Shareholders,

The Corporate Governance Committee has the oversight of corporate governance by applying the Corporate Governance Code (CG Code 2017) of the Securities and Exchange Commission (SEC) to the business context of the Company for the highest effectiveness and efficiency. The Committee has governed and monitored the performance, recommended improvement directions, and reported the results to the Board of Directors on a quarterly basis to ensure the vigorous development of the corporate governance system on an international par.

In 2020, the corporate governance system was continuously developed, ranging from Policy, Handbook, Practices, Business Ethics, to Anti-corruption Measures, including Corporate Compliance Guidance and Sustainability Development Goals (SDGs). The Board of Directors allocated resources to support this undertaking and appropriately supported various corporate governance activities to illustrate the endeavor and determination in elevating the Company's corporate governance standard to the international level. Principal corporate governance development in 2020 can be summarized as follows:

Development of Policy, Roles, and Responsibilities of Directors

The Corporate Governance Committee organized a total of 6 meetings and endorsed the revised Charter of the Committee, Corporate Governance Policy, and Corporate Governance Handbook and Code of Business Conduct to be in line with corporate governance principles for listed companies of the Securities Exchange of Thailand, the Securities and Exchange Commission, the Organization for Economic Cooperation and Development (OECD) and ASEAN CG Scorecard. The revised Corporate Compliance Policy was also endorsed to comprehensively cover significant issues consistent with the current situation and international standard. Other policies endorsed included Electronic Meeting Policy, Insider Trading and Blackout Period Policy, Political Neutrality Policy and Conflict of Interest Measures. The Committee supported the director development program, encouraging all directors to be trained in the course "IT Governance for Board for Optimum Organizational Efficiency" with the Thai Institute of Directors (IOD).

Promotion of Governance and Sustainable Growth

The Corporate Governance Committee supported and promoted the creation of awareness and understanding of corporate governance principles, the dissemination of knowledge, concepts and significant practices as foundation for sustainable development to executives, employees, and all stakeholders both internal and external through diversified ethical projects and activities e.g. PTT Group CG Day 2020 jointly organized with PTT Group flagship companies, IRPC Cubic Academy Season 6 Project providing training for executives, employees, and partners. The Company also participated in activities with our business alliance, e.g. Declaration of Purpose on United Nations SDGs with the Global Compact Network Thailand (GCNT), workshop with the Department of Rights and Liberties Protection to drive the National Action Plan on Business and Human Rights. Such activities have earned the Company acceptance and certain corporate governance awards in 2020 e.g. Human Rights Awards 2020 (2 consecutive years), Thailand Sustainability Investment (THSI) Honorable Plaque for Listed Company.

Care for Stakeholders

The Year 2020 weathered crisis and challenges from the COVID-19 pandemic, which impacted the public health and operations of companies worldwide. The Company still thoroughly observed the legal rights of shareholders for their fair and equitable treatment. The Annual General Meeting of Shareholders was organized with care, taking into consideration shareholders' health and safety and strictly specifying security measures, with transparent, thorough and timely disclosure of information via communication channels of the Company and the Stock Exchange of Thailand. The Company managed the rights of various groups of stakeholders for their best benefits in a balanced manner, based on good governance principles and responsibilities for communities, society, and environment. The Company also encouraged employees to be conscious of corporate governance with a volunteering spirit for the common good.

From our determination to continuously and substantially developing corporate governance whilst strongly creating operational ethics through the cooperation of all parties and everyone in the Company, IRPC is thus recognized, confided, and trusted by all stakeholders throughout the chain as a role model in business operations in line with sustainable development. This has reinforced the corporate governance standards of the Thai capital market to achieve the sustainable growth target of the United Nations Sustainable Development Goals. The corporate targets have simultaneously been accomplished together with the benefits of communities, society, and the country for their happy and balanced cohabitation.



(Mr. Anusorn Sangnimnuan)

Chairman of the Corporate Governance Committee

Message from the Chairman of the Nomination and Remuneration Committee _____ +

Dear Shareholders,

The Nomination and Remuneration Committee (the Committee) executed our tasks with full awareness of our roles, duties, and responsibilities for the best interest of shareholders and all stakeholders in a proper and justifiable manner, in line with good corporate governance and international principles, especially the practices stipulated in the Corporate Governance Code (CG Code 2017) issued by the Securities and Exchange Commission (SEC) on March 17, 2017. The Company thus applied the CG Code to fit our business context for good long-term performance, trustworthiness for shareholders with sustainable value creation as expected by business operations, investors, the capital market, the public sector, and the society on the whole.

In 2020, the Committee organized a total of 10 meetings, of which major missions included nominating directors and subcommittee members, recommending director and subcommittee remuneration as well as that of President and Chief Executive Officer, setting performance targets for President and Chief Executive Officer and formulating executive succession plan.

As for director nomination, the Committee considered persons with suitable knowledge, capability and qualifications, and also identified and reviewed board structure in terms of size, composition and ratio of independent directors appropriate and necessary for driving the Company to its projected objectives and targets. In addition, the qualifications, selection criteria and remuneration structure of President and Chief Executive Officer, the highest-ranking executive crucial to the achievements of the Company, were reviewed for efficient, transparent and clear executive nomination and recruitment process which must also be in line with criteria specified in the Company's Articles of Association and Good Corporate Governance Handbook. This is to ensure that the prospect President and Chief Executive Officer is qualified with knowledge, expertise, capability and experiences in line with business size, type and complexity, thereby navigating the organization to its desired success. The assessment criteria of the Corporate Governance Center of the Securities Exchange of Thailand were applied for performance appraisal of the President and Chief Executive Officer.

In terms of board remuneration, the Committee proposed to keep the 2020 and 2021 compensation unchanged as earlier approved by shareholders in 2006, while bonus was also carefully and appropriately proposed, compared with the Company's operating results and dividend yield. Nonetheless, due to the impact from global economic volatility from crude oil prices, trade war between the USA and China, and COVID-19 pandemic, the Committee proposed to refrain from paying bonus to board members for their 2020 performance.

In 2021, the Committee's focus would be on personnel recruitment and development especially at the executive level to cater to continued generation-to-generation transformation, and be equipped with knowledge, skills, experiences and qualifications essential for corporate accomplishment. The Committee is committed to transparent duty execution at full efficiency to create fairness and maximum benefits for the Company and all shareholders, which will lead to sustainable development and progress of IRPC Public Company Limited.



(Mr. Woothisarn Tanchai)

Chairman of the Nomination and Remuneration Committee

Message from Chairman of the Risk Management Committee +

Dear Shareholders,

The Risk Management Committee has been assigned by the Board of Directors to define policy and recommend directions on corporate risk management in various aspects related to business operations in an appropriate manner and with efficiency. Such financial instruments as derivatives were considered. The Committee screened and provided suggestions on capital project management with technical complexity and long-term commitment, as well as promoted and supported the Management and employees to manage risks and pursue business opportunities from changing circumstances from both internal and external factors. At present, the Committee is comprised of 5 knowledgeable and capable members with experiences in risk management as listed below:

1. Mr. Nuttachat Charuchinda	Chairman
2. Mr. Ekniti Nitithanprapas	Member
3. Mr. Wattanapong Kurovat	Member
4. Mr. Chawalit Tippawanich *	Member
5. Mr. Sukrit Surabotsopon *	Member

* Mr. Chawalit Tippawanich was appointed Risk Management Committee on December 1, 2020 and Mr. Sukrit Surabotsopon on January 19, 2021.

** Mr. Worawat Pitayasiri resigned from directorship and Mr. Noppadol Pinsupa was appointed Corporate Governance Committee on December 1, 2020.

Throughout the year 2020, the Committee held 7 meetings highlighted as follows:

1. The Committee supervised and considered corporate risk management in line with international standard, comprising context definition, risk identification, risk analysis and assessment, risk management measure formulation, including monitoring and reviewing risk management results on a quarterly basis to manage risks at an acceptable level and achieve specified targets.
2. The Committee reviewed and recommended management measures for strategic risks e.g. personnel management risk, high-value product development risk, risk of market expansion both at home and abroad; business risks included oil and product price risks, financial risk, new law compliance risk, digital system security risk, the risk from water shortage in the production process; operational risks such as safety and environmental risks, production risk, community-related risk.
3. The Committee proposed corporate risk management directions to the Management with the Risk Management and Internal Control Committee as a body to manage corporate risks according to stated policy and directions. The Hedging Committee was responsible for monitoring market situation, managing price and volume of crude, raw material, petroleum and petrochemical products, including financial transactions to assure efficient execution and effective risk reduction.

4. The Committee reviewed price and financial risk management reports and provided comments and recommendations on a quarterly basis.
5. The Committee considered and advised the Management in formulating project governance directions through proper and efficient best practice adoption.
6. The Committee assessed and commented on the request to set up IRAS Co., Ltd., with IRPC Technology Co., Ltd., as a shareholder, to provide accounting and tax services.
7. The Committee reviewed the implementation direction of the Ultra Clean Fuel Project (UCF) to improve refinery efficiency and diesel quality to meet with Euro 5 standard.
8. The Committee considered the joint venture project with Navamindradhiraj University to set up the first fully integrated laboratory for medical test services in Thailand and Southeast Asia.
9. The Committee followed up risk management results of the 12.5-megawatt Floating Solar Project in IRPC's water reserve pond and the ABS Powder Expansion Project to raise another 6,000 tons per year capacity.
10. The Committee considered and commented on 2021 corporate risks before submitting for the approval of the Board of Directors by reviewing risk lists to align with business directions, corporate goals, and changing environment.

The Risk Management Committee has systematically, prudently, and comprehensively performed our obligations as assigned at our full capacity and knowledge. In line with good governance, our independence is well observed for the benefits of IRPC, shareholders, and other stakeholders in an appropriate manner.



(Mr. Nuttachat Charuchinda)
Chairman of the Risk Management Committee





Nature of Business and Business Performance

Business Structure and Shareholding

- Major Subsidiaries, Joint Ventures, and Important Associated Companies

Nature of Business

Integrated Petroleum and Petrochemical Complex Flow Chart

- Production Capacity and Volume

Products

Market Overview and Industry Outlook

Revenue Structure

Strategic Projects for Business Growth

Risk Management

Research and Development for Excellence

Driving Business for Sustainability

- Sustainability Management
- Corporate Social Responsibility
- Quality, Security, Safety, Health, and Environment Management

Management Discussion and Analysis (MD&A)

Securities, Shareholders, and other Important Information

- Securities and Shareholders
- Juristic Persons whose 10% of shares or more are held by IRPC

Business Structure and Shareholding



Notes:

- Business and shareholding structure (active companies only)
- On 16 March 2021, the Board of Directors no. 3/2021 approved an investment in the company, namely, Innopolymed Company Limited to be jointly held by IRPC and Innobic (Asia) Company Limited, a subsidiary of PTT Public Company Limited. The Company and Innobic (Asia) Company Limited will hold the shares equivalent to 60% and 40%, respectively. Such company will operate in non-woven fabric as well as medical consumables businesses which is aligned with PTT's new business strategy in Life Science and aligned with IRPC's strategy in smart material business.

Major Subsidiaries, Joint Ventures, and Important Associated Companies

Subsidiaries

- **IRPC Oil Co., Ltd.**, a subsidiary of IRPC, with 99.99% shareholding and 2,000 million baht registered and paid-up capital, is a distributor of oil products from the IRPC's refinery with 5 depots in various regions to support product distribution.
- **IRPC Technology Co., Ltd. or "IRPC Technological College"** is a subsidiary of IRPC with a registered and paid-up capital of 750 million baht, established to be an educational institution in industry and technology at Vocational Certificate and High Vocational Certificate levels in Commercial and Factory Mechanics curriculum.
- **IRPC A&L Co., Ltd.**, a Styrenics polymers supplier, with 10 million baht registered and paid-up capital is a subsidiary of IRPC with a stake of 57.48%, while Nippon A&L Co., Ltd. holds 39.99%, and others hold 2.53%.
- **iPolymer Co., Ltd. (iPolymer)** is a subsidiary of IRPC with a registered and paid-up capital of 120 million baht, established to develop the E-Commerce trading business of plastics and chemical products in Thailand.

Joint Ventures

- **IRPC Polyol Co., Ltd.:** IRPC holds 50% and PCC Rokita SA holds 50% of the 370 million baht registered and paid-up capital of IRPC Polyol, which is a manufacturer and distributor of polyol products including polyester and polyethylene, used as a raw material to produce polyurethane for further production of various products such as foam used in furniture, shoe soles and insulation.
- **Mytex Polymers (Thailand) Co., Ltd.:** IRPC holds 50% of shares and Japan Polypropylene Corporation holds other 50%, with 120 million baht of registered and paid-up capital. Mytex Polymers manufactures and sells polypropylene specialty compounds.
- **WHA Industrial Estate Rayong Co., Ltd.:** IRPC holds 40% of shares and WHA Industrial Development Public Company Limited holds 60%, with 665 million baht of registered and paid-up capital. WHA Industrial Estate Rayong operates industrial estate development business.

Associated Companies

- **IRPC Clean Power Co., Ltd. (IRPC-CP):** IRPC holds 48.99% of shares and Global Power Synergy Plc. holds 51%. IRPC-CP is a small power producer (SPP) with a capacity of 240 megawatts.
- **UBE Chemicals (Asia) Plc. (UCHA):** IRPC holds 25% of shares while Ube Industries Limited holds 74%, and others hold 1%. UCHA is an international leader in caprolactum and nylon 6 markets with a capacity of 130,000 tons per year and 75,000 tons per year, respectively.
- **PTT Energy Solutions Co., Ltd. (PTTES)** is an engineering consultant, with the following shareholding structure: IRPC 20%, PTT Plc. 40%, PTT Global Chemical Plc. 20% and Thaioil Plc. 20%.

Relationship with Businesses of Major Shareholder

The Company's major shareholder is PTT Public Company Limited (PTT), a fully integrated petroleum and petrochemical business operator throughout the supply chain from upstream to downstream through PTT's own businesses and others of its subsidiaries namely petroleum exploration and production, oil refining, and petrochemical businesses. Currently, PTT is the major shareholder of Thailand's 3 refineries, comprising PTT Global Chemical Public Company Limited (45.41%), Thai Oil Public Company Limited (45.03%), and IRPC Public Company Limited (45.05%). In petroleum and petrochemical business operations, IRPC has transactions and cooperates with PTT and its subsidiaries. For example, the Company purchases most crude oil through PTT for efficiency enhancement and cost reduction, manages oil and/ or product price risks through PTT and receives and provides financial assistance for mutual liquidity management. In addition, the Company has transactions associated with the trading of raw materials, petroleum products and petrochemical products, with PTT Group companies.

“

The Company focuses on moving forward and adapting to global changes in both environment and production technologies.

”

||||| PETROLEUM
BUSINESS

PETROCHEMICAL
BUSINESS

ASSET
MANAGEMENT
BUSINESS



Nature of Business



IRPC Public Company Limited is Southeast Asia's integrated petrochemical pioneer. The Company operates a refinery and petrochemical complex in Rayong. Its main facilities are located within the IRPC Industrial Park, which features the infrastructure needed for its business, including a deep-sea port, an oil depot, and a power plant.

Petroleum Business

IRPC's refinery has a total capacity of 215,000 barrels per day (bpd), the 3rd largest refinery in Thailand in terms of production capacity. IRPC manufactures a range of petroleum products, namely liquefied petroleum gas (LPG), naphtha, gasoline, diesel, and fuel oil. Additionally, IRPC's Lube Base Oil Group I plant has a total capacity of 320 kilotons per annum (KTA), and the associated asphalt plant has a total capacity of 600 KTA, which are the highest domestic capacities. It is Thailand's first asphalt plant to sell TIS-certified 40/50 asphalt in the domestic market. IRPC is also a producer of rubber process oil, whose quality has attained international recognition.

Petroleum Extension

The Upstream for Hygiene and Value-Added Products (UHV) project and the Residual Deep Catalytic Cracking Plant (RDCC Plant) have increased the production capacity of IRPC's refinery by 215,000 bpd. Meanwhile, its production of fuel oil has gone down from 23% to 8% because it has been replaced by higher-value products, mainly propylene and naphtha.

IRPC's new propylene production capacity is at 320 KTA, adding to the existing capacity of 412 KTA, which results in a total propylene production capacity of around 732 KTA. (Propylene products will be a feedstock for the project to increase the propylene production capacity to 160 KTA and the plan to produce 140 KTA of propylene compound, which is a high value-added product used in the medical and automotive industries.)

The UHV project has a propylene production capacity of 320 KTA. Meanwhile, the Maximum Gasoline project has increased IRPC's naphtha production capacity from 370 KTA to 462.858 KTA, catering to the domestic market for gasoline. Responsible for the know-how used in the Maximum Gasoline project is the France-based refining technology provider AXENS, who designed the extension's production process and improved the equipment of the refinery towers. This increase in the gasoline production capacity allowed IRPC to enjoy a larger market share in 2020, adding about 582 million baht a year to its revenue.



Petrochemical Business

Nature of Petrochemical Business

IRPC is a producer of upstream petrochemical products, namely olefins and aromatics. These upstream products are feedstocks for IRPC's downstream petrochemical plants: 931 KTA of polyolefins (HDPE and PP, UHMW-PE) and 383 KTA of styrenics (ABS, SAN, PS, and EPS). These downstream products are sold to producers of finished plastic products in Thailand and overseas under the brand POLIMAXX.

Focusing on the growth of its petrochemical business, IRPC endeavors to stay abreast of global environmental and technological changes through researching and developing new products that will increase its competitiveness. Recent innovations include paralene from natural ingredients, recycled compound resin, and acetylene black for Li-ion batteries (Pim-L and

Pim-AL). Furthermore, through the Eco Solution project, IRPC has pioneered a closed loop production for the plastics industry in which one plant's waste is efficiently used as another's feedstock. The model ensures that no waste would get out of the loop and become a burden to society

Supporting Businesses

Power and Public Utilities

IRPC provides electricity, steam, and infrastructure, including wastewater treatment and other related services, to industrial clients, in support of their operations. The details of these services are as follows:



- **Electrical and Steam:** IRPC transmits 22 kV and 115 kV of electricity and 25 bars and 45 bars of steam. IRPC's combined heat and power generation unit uses natural gas as fuel. IRPC also operates a 307 MW coal power plant. Its power dispatching center ensures the stability of its electrical current and steam. The loop line system allows customers to continue using power despite maintenance.

IRPC also installed a 12.5 MW floating solar farm atop a 200-rai water reservoir, the largest capacity in Southeast Asia. The solar farm contributes to the power stability in IRPC Industrial Park and is considered an innovation that not only increases business opportunities but is also eco-friendly and alleviates

global warming. The key feature of IRPC's floating solar farm is the pontoons made of IRPC's innovative gray HDPE (High-Density Polyethylene) resin under the brand POLIMAXX, which can reduce the temperature under solar panels by 5-8 degrees Celsius and thus further enhance the power generation efficiency. The HDPE is also resistant to UV and impact, boasts a lifespan of 25 years, and is a US FDA-approved food-grade material. It is also eco-friendly and recyclable, thus reducing 10,510 tons of greenhouse gas emissions, an equivalent of planting 10,000 trees. The floating solar farm also maximizes the utilization of water surfaces in reservoirs intended for drought and flooding management in Rayong.

IRPC has also partnered with IRPC Clean Power Company Limited, resulting in an additional 54 MW of electrical power and 170 tons per hour of steam, contributing to system security and stability as well as the operational continuity of IRPC's clients and companies within IRPC Industrial Park.

- **Water:** IRPC provides filtered water, demineralized water, cooling water, raw water, and fire-fighting water for the industrial quota given by the Royal Irrigation Department. The Company operates two water filtration plants: one in Ban Khai District and one in the IRPC Industrial Park, to continuously meet its customers' water demand and foster business stability.
- **Pneumatics:** IRPC produces and provides nitrogen, instrument air, and plant air for industrial use. The Company is also a business partner of pneumatics leaders.
- **Wastewater Treatment:** IRPC uses membrane bioreactor plus activated carbon adsorption (MBR Plus AC) to treat wastewater. This bioprocess is highly efficient and stable. The treated water consistently passes inspection, garnering the trust and confidence of the surrounding communities.



Port and Tank Services

IRPC has a number of domestic and international ports where goods are transported, with ports available to outsiders in different regions. In 2020, thanks to channel deepening projects, the port business generated total revenue of 360 million baht, an increase of 20 million baht or 6% from 2019. The ports handled approximately 16 million tons of goods and served approximately 2,620 vessels. The details are as follows:

1. IRPC Deep Sea Port, Rayong (Eastern Thailand)

• Bulk & Container Terminal (BCT)

The terminal is 900 meters long and 44 meters wide. It comprises six berths, which accommodate vessels of various sizes, ranging from 800 to 150,000 DWT. They handle commodities, such as metal, palm shells, coal, granite, sand, fertilizers, and construction materials. Currently, the terminal accommodates more than 220 vessels per year.

In 2020, BCT was renovated to increase the tonnage range and accommodate investments in the Eastern Economic Corridor (EEC). As a result of the renovation project, the channel was deepened from 12.5 meters to 14.5 meters, enabling the port to

accommodate more metal transport. In addition, thanks to the increase production of rubber glove manufacturers, the total volume of goods handled at the port was 1.2 million tons, an increase of 0.2 million tons or 20% compared to 2019.

• Liquid & Chemical Terminal (LCT)

This particular terminal is equipped with state-of-the-art equipment to handle liquids and gases efficiently and safely. The terminal is 1,623 meters long. It comprises 6 berths that can accommodate vessels of different sizes, ranging from 1,000 to 250,000 DWT. Currently, the terminal accommodates more than 2,400 vessels per year.

IRPC provides the following services and facilities for customers: tug boats, port pilots, service boats, mooring, freshwater, bunkers, nautical charts, cranes, hopper cars, weighing, cargo yards, and warehouses.

As a result of a channel deepening and wharf renovation project, the channel has been deepened from 17 meters to 19 meters, reducing costs of material imports. In 2020, the port handled approximately 15 million tons of goods, a 0.85 million tons increase from 2019.

2. Chao Phraya Port, Phra Pradaeng Oil Depot, Samut Prakan

Wharf No. 13 can accommodate a cargo ship of up to 140 meters length with a draft of up to 8.6 meters and a capacity of up to 15,000 DWT.

3. Pa Sak Port, Ayutthaya Oil Depot, Tha Ruea District, Ayutthaya

- **Bulk & Container Terminal (BCT):** This terminal can accommodate a cargo ship of up to 140 meters length with a draft of up to 6 meters and a capacity of up to 500 DWT.
- **Oil-Cargo Terminals 1A and 1B:** These terminals can accommodate a cargo ship of up to 49 meters length with a draft of up to 6 meters and a capacity of up to 1,000 DWT.

4. IRPC Deep Sea Port, Sai Ri Beach, Pak Nam Sub-district, Mueang District, Chumphon (Southern Thailand)

This particular port can accommodate a cargo ship of up to 85 meters length with a draft of up to 5 meters and a capacity of up to 2,000 DWT.

Tank Service

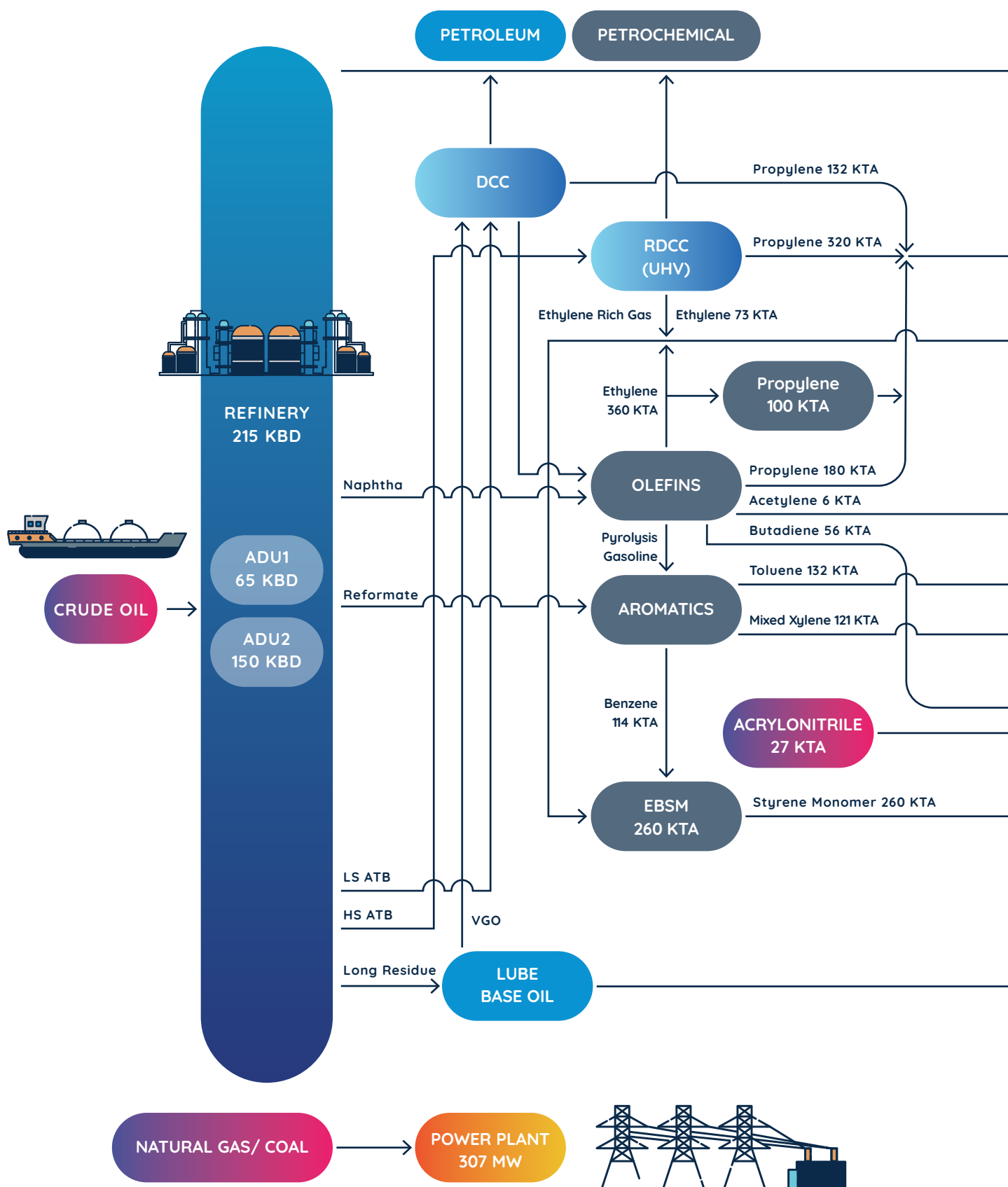
Additionally, IRPC's team of experienced specialists operates 299 tanks for liquid petroleum and petrochemical products with a storage capacity of 2.9 million tons, using an efficient management system that meets international safety standards. These tanks accommodate IRPC's petroleum-based products and those of others. These tanks are located in different oil depots across Thailand-namely Rayong (Eastern Thailand), Phra Pradaeng (Bangkok), Phra Nakhon Si Ayutthaya (Central Thailand), and Chumphon (Southern Thailand). Each depot has a port or wharf to accommodate sea freights, which makes transportation and distribution efficient, lowers costs, and saves time. In 2020, IRPC distributed an average of 229 million liters of oil products and 94,230 tons of plastic resins to its oil depots per month.

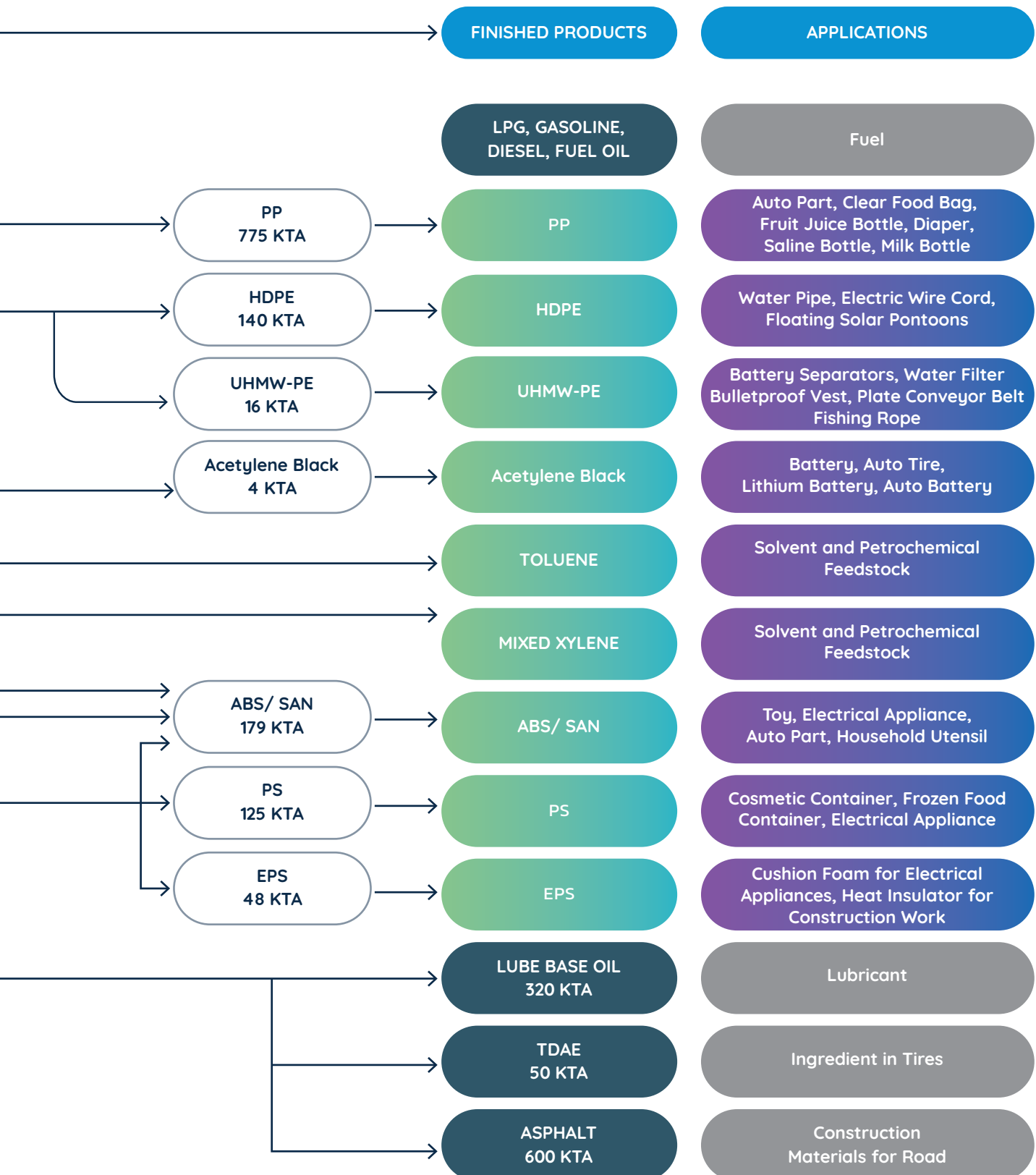
Asset Management Business

IRPC manages approximately 12,000 rai of high-potential land in Rayong and other provinces, including the WHA Industrial Estate Rayong (WHAIER). The Company has developed these plots of land into high-potential industrial estates capable of supporting Thailand's industrial expansion, especially the development of the Eastern Economic Corridor (EEC) and other projects under the government's investment promotion policies. IRPC's asset management business is further divided into three categories:

- **IRPC Industrial Park, Mueang District, Rayong:** The IRPC Industrial Park features a complete range of infrastructure for industrial development. This industrial hub connects upstream Petroleum and Petrochemical products with direct downstream petrochemical products, supporting the needs of high technology industries.
- **WHA Industrial Estate Rayong (WHAIER), Ban Khai District, Rayong:** This industrial estate is a joint venture between IRPC and WHA Industrial Development Public Company Limited (WHAID) with a shareholding ratio of 40/60, respectively. It caters primarily to accommodate future investments in the EEC.
- **Others:** IRPC owns a large plot of land of about 2,200 rai in Chana District, Songkhla, which can be developed into an industrial support base or a commercial base to support a deep water port project and a power plant project of the government. IRPC also owns other smaller plots of land in Rayong, Chiang Mai, and Lamphun.

Integrated Petroleum and Petrochemical Complex Flow Chart





Production Capacity and Volume

(Unit: KTA)

Products ⁽¹⁾	Production Capacity			Volume ⁽²⁾			Utilization Rate		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
Petroleum									
Oil Refinery (KBD)	215	215	215	208	197	192	97%	92%	89%
Lube Base Plant	1,282	1,282	1,282	1,084	1,055	1,094	85%	82%	85%
Lube Base Oil	320	320	320	343	324	336	107%	101%	105%
Asphalt	600	600	600	560	553	606	93%	92%	101%
Petrochemicals									
Polyolefins	915	915	915	824	838	811	90%	92%	89%
- HDPE	140	140	140	118	124	117	84%	89%	83%
- PP	775	775	775	696	700	683	90%	90%	88%
Polystyrenics	433	433	433	402	361	395	93%	83%	91%
- ABS	119	119	119	93	67	86	78%	57%	72%
- SAN	105	105	105	101	89	93	96%	85%	88%
- PS	125	125	125	147	149	155	117%	119%	124%
- EPS	48	48	48	36	33	35	74%	68%	73%
Olefins ⁽³⁾	696	696	696	693	685	682	100%	98%	98%
- Ethylene	433	433	433	385	364	354	89%	84%	82%
- Propylene	732	732	732	702	666	662	96%	91%	90%
- Butadiene	56	56	56	54	53	56	97%	96%	100%
Aromatics	501	501	501	518	507	493	103%	101%	98%
- Benzene	114	114	114	117	112	105	103%	98%	92%
- Toluene	132	132	132	145	147	144	110%	111%	109%
- Mix Xylene	121	121	121	152	146	141	126%	120%	116%
Styrene Monomer	260	260	260	287	244	283	110%	94%	109%

Notes:

(1) Total production capacity and volume of products consist of major products and other products.

(2) Volume includes products used as raw materials in the plants.

(3) Olefins production capacity at 696 KTA does not include olefins from DDC and RDCC plants.



“

The Company places great importance on continuous research and development to accommodate diverse customer needs and changing economic situations, as well as to maximally meet customer's demands and expectations.

”



Products



IRPC and its subsidiaries produce and distribute petroleum and petrochemical products. Below is a summary.

Petroleum Products

1. Fuels

- **Gasoline:** A fuel for petrol engines, gasoline is classified by its octane rating, which indicates its resistance to “knocking” or “pinging” during combustion. Under state regulations, IRPC’s gasoline is divided into ULG91 lead-free gasoline, GSH95 and GSH91 gasohol, and gasohol base, the last of which is used to manufacture gasohol and E20.
- **Fuel oil:** A fraction of crude oil with a high boiling point, fuel oil is widely used in the industrial sector, transportation, and power generation.
- **Liquified petroleum gas (LPG):** A mixture of hydrocarbon gases, mainly propane and butane, LPG is commonly found in household kitchens and various other industries. It can also be used as a fuel or gasoline engine.
- **Diesel:** Diesel is fuel for high-speed diesel engines used in the industrial sector and vehicles, such as cars, trucks, fishing trawlers, passenger boats, and tractors. IRPC offers blends of 5-7% biodiesel as per government policy to promote the use of alternative energy and palm oil. Furthermore, as per government policy, B10 is the standard diesel in Thailand, while B7 and B20 are alternatives. IRPC began selling B20 by mid-2018; and B10 at the end of 2019.
- In 2019 IRPC began manufacturing low-sulfur fuel oil (LSFO), which is used primarily by cargo ships, to comply with the International Maritime Organization’s requirement, which stipulates that the sulfur level in tanker fuel must be reduced from 3.5 percent to 0.5 percent by 2020. IRPC readily adapted and was able to sell LSFO that met this requirement by the end of 2019.

2. Lube Base Oils

- Lube base oils refer to heavy distillates used for producing different grades of lubricants. IRPC produces the following grades of base oil for various purposes and applications:

150 SN is the feedstock for the automotive and transport industries, among others.

500 SN is the feedstock for lubricants used in most vehicles.

150 BS is used in industries and engines involving high friction, such as those in trucks, locomotives, and seagoing vessels.

In addition to these products, IRPC has researched and developed other innovative base oils-namely, Treated Distillate Aromatic Extract (TDAE) and Residue

Aromatic Extract (RAE). These serve as feedstocks for automotive tires and contain reduced Polycyclic Aromatic Hydrocarbons (PAHs), which is a carcinogen, meaning they are safer for consumers' health.

- Asphalt: Asphalt, also called bitumen, is a compound of hydrocarbons and other organic substances. Thick and viscous, asphalt is the heaviest portion obtained from the crude oil distillation process. It is used for road construction and waterproofing.

3. Other Petroleum Products

Naphtha refers to light distillates obtained from the oil refining process. It is a major petrochemical feedstock.

Domestic Refineries' Capacities of 2020 (Jan-Dec)

Total Output of 1,244.5 KBD



Source: Energy Policy and Planning Office

Petrochemical Products

1. Olefins

Olefin products—namely ethylene, propylene, and butadiene—are feedstocks for the production of various polymers, namely polyethylene (PE) and polypropylene (PP). IRPC produces 433 KTA of ethylene, 732 KTA of propylene, and 56 KTA of butadiene. Most of these olefins serve as feedstocks for the various manufacturing plants in the IRPC Group.

Furthermore, the olefins plant yields acetylene black as a by-product. This powder-like pure black substance has high electrical conductivity and is thus commonly used in the production of standard batteries and even lithium-ion batteries for electronics and electric vehicles. It is also an electrically conductive additive for polymers and rubber products. IRPC currently produces 4 KTA of acetylene black.

2. Aromatics

IRPC's aromatic products consist of benzene, toluene, and mixylene, with a capacity of 114 KTA, 132 KTA, and 121 tons per year, respectively. They are used as feedstocks for manufacturing plants in IRPC's subsidiaries and partially sold to other industries.

3. Polymers

IRPC and its subsidiaries produce polymer products under the brand POLIMAXX. As downstream petrochemical products, polymers are the feedstock for various plastic products. IRPC manufactures two groups of polymers. The polyolefins group comprises HDPE and PP, while the styrenics group includes ABS, PS, and EPS. Each polymer type possesses distinct properties and lends itself to different applications:



3.1 High Density Polyethylene (HDPE)

IRPC's HDPE is a high-density polyethylene product with in-line compounding. It is suitable for pipe extrusion, especially water supply pipes, electrical conduits, and drainage pipes. Moreover, IRPC has developed a special grade of HDPE for the production of solar farm pontoons, which require exceptional weather resistance.

3.2 Polypropylene (PP)

PP is widely used in several industries, including packaging, electronic appliances, automotive parts, and medical-grade equipment and apparatuses. IRPC produces PP Homopolymer, impact-resistant PP Block Copolymer, and extratransparent PP Random Copolymer. It also manufactures PP Compounds, which allow additive and color customization according to the needs of each industrial client.



3.3 Acrylonitrile-Butadiene-Styrene (ABS)

IRPC produces many grades of ABS, each with its unique properties, such as high-impact and super high-impact resistance, high gloss, and high heat resistance. Compatible with injection molding and sheet extrusion, ABS is commonly made into products that require durability, finesse, and shine, such as parts for electronic appliances, internal and external automotive parts, household appliances, sanitaryware,

and children's toys. This is because ABS is strong, durable, and resistant to heat and high impact, exhibits good paint adhesion, and can withstand various chemicals and solvents, such as thinners. It also produces high gloss and can be made into many different vibrant colors or even plated with a metal.

3.4 Acrylonitrile Styrene (SAN)

Transparent, hard, strong, and tough, SAN (or AS) has higher thermal and chemical resistance than PS. It is commonly used to manufacture lenses for headlights and taillights, some parts of turn-signal lenses, household appliances such as sanitaryware, lighters and containers, as well as electrical appliances such as fan blades and blenders. In addition to the properties previously mentioned, SAN also produces glossy surfaces, has high rigidity, and is particularly resistant to shear force.

3.5 Polystyrene (PS)

IRPC produces two categories of PS based on its properties. General Purpose Polystyrene (GPPS) offers transparency and hardness. It is easily molded but has low-impact strength and is thus commonly used to make products that require transparency and structural integrity, such as refrigerator shelves and other household appliances. High Impact Polystyrene, on the other hand, can withstand more impact than GPPS, thanks to the addition of butadiene rubber. Both types of PS are compatible with injection molding and sheet extrusion.

3.6 Expandable Polystyrene (EPS)

IRPC mainly uses styrene monomer as feedstock for its EPS, with pentane as the blowing agent. The Company uses no ozone-depleting CFCs. EPS has the following uses:

- Packaging, such as the shock absorbing material in electrical appliance packaging
- Blocks, such as insulation blocks in the fishing industry's cold storage rooms and modern constructions to save energy consumption in cooling and reduce construction expenses. EPS Blocks can also be used in decorative works.

4. Specialty and Innovative Products

IRPC attaches importance to continuous research and development, especially self-development, to cater to its customers' diverse needs and cope with economic volatility. The company has developed the following products to fulfill customers' expectations while also taking care of the environment.

- Green ABS is an innovative polymer conceived from IRPC's corporate social and environmental responsibility awareness. The Company is the world's first and only producer of green ABS, which is derived from natural rubber. Currently, 10-40% of synthetic rubber is replaced with natural rubber in the production of ABS, contributing to the increase in domestic rubber prices.
- Paralene is a 20% bio-based polystyrene, effectively lowering the need for oil-based raw materials in the production process. It is FDA-approved and recyclable like regular polystyrene.
- Chlorine Resistance Pipes are made from polymers that can withstand the corrosiveness of chlorine. These pipes are ideal as high-pressure drinking water conduits and have a longer lifespan than regular pipes, which lowers maintenance costs and ensures that drinking water would be free of contaminants resulting from corrosion.



POLIMAXX
Bio-Maxx L-Cement



HDPE
PIPE-P901BK-CR

- Medical-Grade Polypropylene Random Co-polymer is a transparent PP developed specifically for medical equipment and related applications. It has been certified to various international standards, such as FDA US21 CFR 177.1520 of the United States of America as well as EU No. 10/2011 and European Pharmacopeia 3.1.6 and USP Class VI of the European Union.
- Ultra-High Molecular Weight Polyethylene (UHMW-PE) is an opaque white powder with as much as 10 times higher molecular density than other PE varieties. It can be subject to a range of treatments, such as compression, RAM extrusion, and gel spinning. Thanks to superior properties to those of iron joints and gears, UHMW-PE is suitable for a range of applications that require toughness, strength, and resistance to abrasion and chemical erosion.
- Anti-dripping Additive prevents polymer products from dripping when caught on fire. Made with nanotechnology, IRPC's anti-dripping additive disperses well in polymers and can be stored at room temperature, which lowers storage and transportation costs. This agent can be added to a variety of polymers that need to meet the UL-94 (V.0) flame retardancy standard. IRPC has also used this anti-dripping additive to improve its flame-retardant ABS.
- Pim-L and Pim-AL are special-grade acetylene black products that IRPC has developed in collaboration with NSTDA specifically for use as a carbon conductive additive in lithium-ion batteries.
- Post-consumer Recycled compound is made with used plastics that have been modified and thus have properties comparable to virgin plastic resins. Available both as PP and PS, this type of compound can help solve plastic waste problems and reduce environmental impact.

Tables and chairs
recycled from
mashed potato cups
(PP polymers)

Trays
recycled from
Cutlery
(PS polymers)



Domestic Polymer Producers and Capacities in 2020

Product	Company	Capacity	Percentage
HDPE	IRPC PCL	140	7
	Thai Polyethylene Co., Ltd.	920	50
	PTT Global Chemical PCL	800	43
	Total	1,860	100
PP	IRPC PCL	775	34
	HMC Polymers Co., Ltd.	810	35
	Thai Polypropylene Co., Ltd.	720	31
	Total	2,305	100
ABS	IRPC PCL	179	65
ABS	Ineos ABS (Thailand) Co., Ltd.	95	35
	Total	274	100
EPS	IRPC PCL	48	61
EPS	Ming Dih Chemical Co., Ltd.	30	39
	Total	70	100
PS	IRPC PCL	125	34
PS	Siam Polystyrene Co., Ltd.	150	41
	Thai Styrenics Co., Ltd.	90	25
	Total	365	100

Feedstock Sourcing

The primary feedstock for IRPC's production is crude oil, which is mostly procured from sources in the Middle East through PTT and partly purchased from spot markets. IRPC also sources crude oil domestically, which is lower in price and incurs lower transportation costs. Imported crude oil is transported via large oil tankers to deep seaports located in the same area as IRPC's plants and supplied to the production process, allowing for efficient feedstock management.

In 2020, crude oil accounted for 83% of all feedstocks purchased by IRPC. Of this amount, 68% was procured from sources in the Middle East, such as Saudi Arabia and the United Arab Emirates (UAE), 20% from the Far East, 5% from domestic sources, and 7% from other countries in the region.

Volume and Value of Feedstocks Purchased in 2020

Feedstock	Volume		Value		① Value ratio	
	Ton	Percentage	Million Baht	Percentage	Domestic	Imported
Crude oil	9,306,969	82.70%	97,087	75.78%	4.31%	95.69%
Natural gas	483,535	4.30%	5,881	4.59%	100.00%	0.00%
Diesel	357,169	3.17%	7,586	5.92%	100.00%	0.00%
Aviation fuel	196,766	1.75%	2,520	1.97%	100.00%	0.00%
Benzene	149,676	1.33%	2,232	1.74%	100.00%	0.00%
Light naphtha	138,913	1.23%	1,757	1.37%	49.28%	50.72%
Biodiesel B 100	126,199	1.12%	4,199	3.28%	100.00%	0.00%
Ethanol	35,981	0.32%	1,047	0.82%	100.00%	0.00%
Propylene	17,102	0.15%	478	0.37%	38.45%	61.55%
Acrylonitrile	31,160	0.28%	1,122	0.88%	100.00%	0.00%
Others	410,611	3.65%	4,200	3.28%	70.90%	29.10%
Total	11,254,081	100.00%	128,110	100.00%	25.60%	74.40%

Notes:

(1) The value ratio of crude oil is by source, while the value ratios of the other feedstocks are by supplier country.

Promotional Privileges

By virtue of the provisions of the Industrial Investment Promotion Act of B.E. 2520, the Company has been granted privileges by the Board of Investment relating to the manufacture of compounded plastic, the cogeneration and steam power plant project ("CHP"), the Propylene project ("PRP"), the EBSM Upgrading for ABS Specialties project ("EBSM"), the Multi Product

Pipeline project ("MPPL"), the Polypropylene Resin project ("PPE"), the Polypropylene Compound project ("PPC"), the High Pressure HDPE Compound project, the investment project in industrial areas, the energy efficiency project for refineries ("UHV"), and the Floating Solar project. The privileges granted include:

- (a) exemption from payment of import duty and tax on materials and necessary parts including machinery as approved by the Board;
- (b) exemption from payment of corporate income tax on the net profit derived from certain operations for a period of five to eight years from the date on which the income is first derived from such operations;
- (c) a 50% reduction in the normal corporate income tax rate on the net profit derived from certain operations for a period of five years commencing from the expiry date in (b) above, and
- (d) the double deduction of logistics, electricity and water expenses for a period of ten years since income is first derived from such operations.

In 2020, IRPC recorded 91,821 million baht in revenue from sales (according to separate financial statements) of the promoted industry, a 23% decrease from the previous year. Of this amount, 60,748 million baht was derived from domestic sales, and the remaining 31,073 million baht from exports.

Operating Assets

Major Fixed Assets

The major fixed assets used in the operation of IRPC and its subsidiaries consist of refineries, petrochemical plants, tools, equipment, machinery, and property. As of the end of 2020, the net property, plant, and equipment was worth 114,550 million baht, as detailed below.

(Unit: Million Baht)

Property, Plant, and Equipment - Cost		Net Value	Obligation
1.	Machinery and pipes	150,949	None
2.	Buildings and building improvements	41,228	None
3.	Land and land improvement	11,795	None
4.	Tools and factory equipment	3,448	None
5.	Furniture, fixtures, and office equipment	1,291	None
6.	Vehicles	681	None
Total		209,392	
Add	Assets under construction and assets under installation	3,157	
<u>Less</u>	Accumulated depreciation	(97,388)	
	Allowance for impairment	(611)	
Total property, plant, and equipment		114,550	

Investment Property

As of the end of 2020, IRPC's net investment property, consisting of property and buildings that were not operating assets, after depreciation and allowance for impairment totaled 922 million baht.

Intangible Assets

As of the end of 2020, IRPC's intangible assets totaled 774 million baht, consisting of:

- 1) Net computer software fees of 599 million baht with amortization periods of 5-10 years
- 2) Net dredging expenses of 175 million baht with amortization periods of 10-20 years; the dredging was conducted to prepare the sea bed around deep sea ports for incoming cargo ships.



“

Sales strategy is emphasized on maintaining product quality standards, clean energy, standardized quality from the refinery and service. The purchase order is placed via PDA on Mobile through the IRON system, the first and most advanced system of petroleum business in the region.

”

Market Overview and Industry Outlook



Petroleum Market and Competition

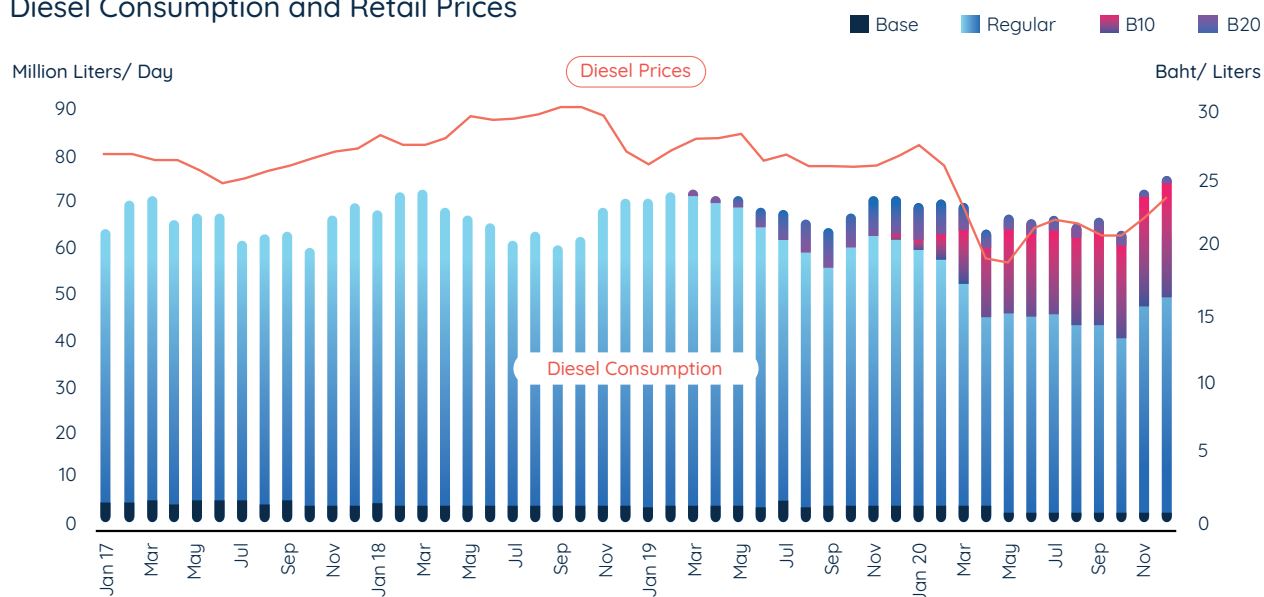
Crude Oil and Refined Petroleum Products

In 2020, because the COVID-19 pandemic led many countries across the world to introduce stringent measures to restrict entry and travel, the global oil consumption fell by 9%. Similarly, in Thailand, COVID-19 measures introduced by the government caused domestic energy demand and economic growth to slow down.

The average consumption of diesel stood at 65.46 million liters per day, a 2.7% decrease. B7 was the most popular fuel, making up 64% or 41.76 million liters per day - a drop of 27.3% compared to the same

period in 2019, while the consumption of high-speed diesel began in June 2019 and consistently grew to 16.22 million liters per day, accounting for 25% of all diesel consumption. The consumption of B20, which was first sold in July 2018, stood at 3.47 million liters per day and accounted for 5% of all diesel consumption, falling by 22.2% compared to the same period in the previous year. This could be partly attributed to the fact that the prices of high-speed diesel and B20 differed only slightly, prompting most users to opt for the former.

Diesel Consumption and Retail Prices

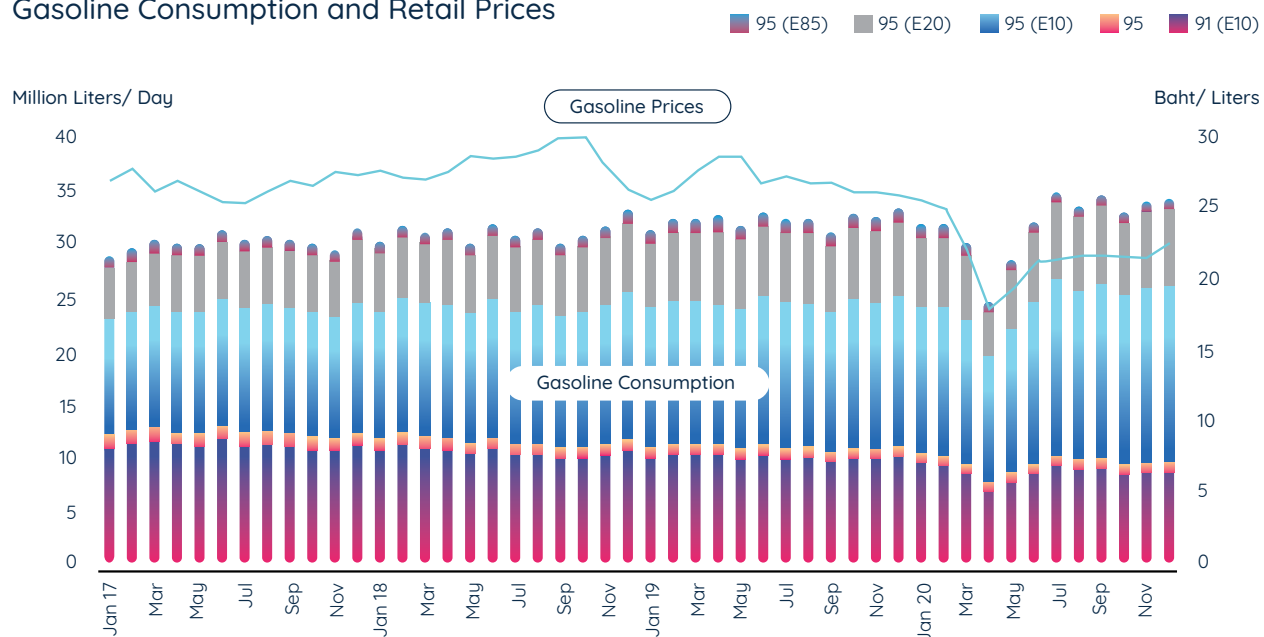


Source: Energy Policy and Planning Office

The consumption of gasoline and gasohol averaged 31.72 million liters per day, showing a 1.2% drop. The use of gasohol 95 made up 48% of diesel consumption at 15.27 million liters per day on average, an increase of 10.3% compared to the same period of 2019, while gasohol 91 consumption dropped 13.7% to 8.21 million liters per day, accounting for 25% of total diesel consumption. As the prices of the two products differed only slightly, coupled with the emergence of the global COVID-19 pandemic, which triggered a global economic downturn and caused global oil prices to fall, most users opted for gasohol 95, which has a higher

octane number. Gasohol E20 consumption began climbing since mid-2020 and averaged at 6.54 million liters per day, increasing by 0.6% compared to the same period in 2019 and accounting for 21% of all benzene consumption. Benzene 95 was consumed at the rate of 0.79 million liters per day on average, making up 3% of all benzene consumption, while the use of gasohol E85 showed signs of falling since early 2020 and averaged 0.9 million liters per day, a 30% drop from the previous year. As its average retail price was lower than that of gasohol 95, most users of gasohol E20-compatible vehicles chose the cheaper product.

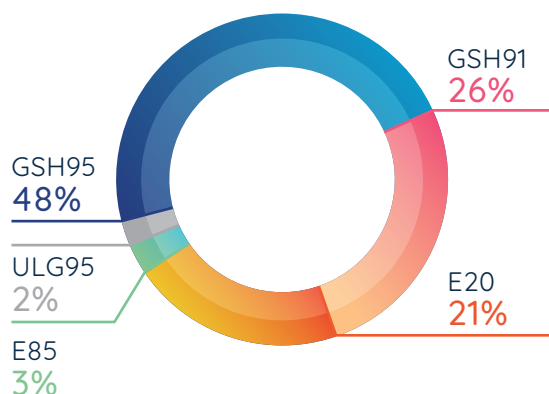
Gasoline Consumption and Retail Prices



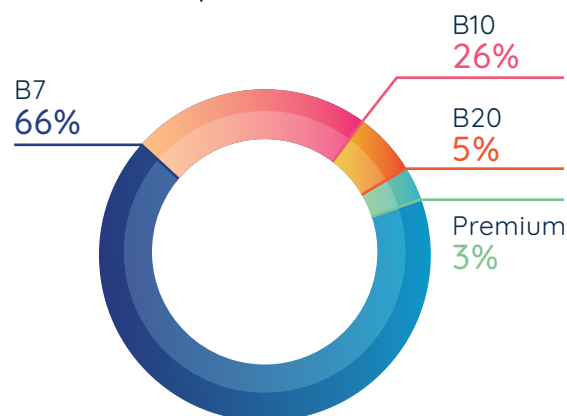
Source: Energy Policy and Planning Office

Domestic Refineries' Capacities of 2020. Total Output of 1,244.5 KBD

Gasoline Consumption



Diesel Consumption



Source: Department of Energy Business

Notable oil and gas operators in Thailand are PTT, Esso, Bangchak, Shell, and Chevron. Their domestic market shares are as follows:

Company	*Domestic Market Share
PTT	40%
Esso	13%
Bangchak	12%
Shell	10%
Chevron	7%
IRPC	5%
Others	13%

Source: Department of Energy Business

* These market shares are based on each operator's own sales, which does not include the sales through other Article 7 retailers.

Crude Oil Market in 2020

The crude oil market was very volatile throughout 2020, with an average price of 42.1 US dollars per barrel - a drop of 21.4 US dollars per barrel against the price of 2019. This could be attributed to the COVID-19 pandemic, which caused global oil demand to plunge by 10-15 million barrels per day (bpd). Measures introduced by different governments, including mandatory face masks, social distancing, lockdowns through control and restrictions of domestic and international travel, and restrictions on public gatherings, had direct impact on economic activities and thus triggered a sudden plummet in oil demand. Oil-producing countries were severely affected and held a meeting to consider production control but were unable to reach a conclusion,

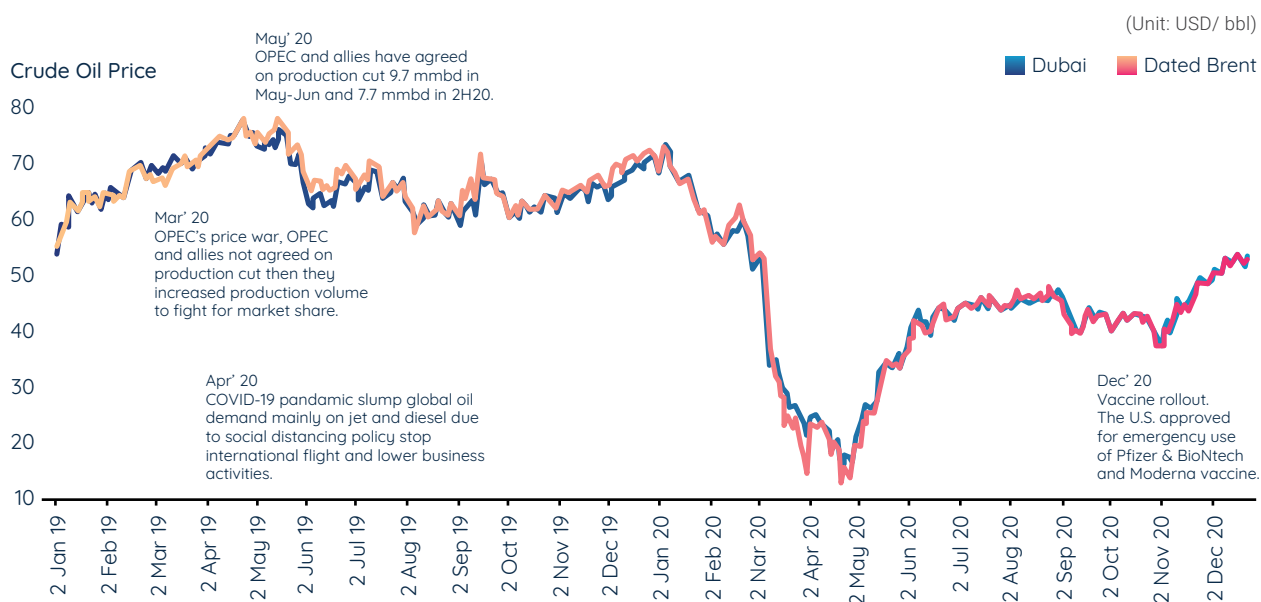


bringing the cooperation between OPEC countries and allies that began in 2017 to an end. This led to a price war in March, in which they cut crude oil prices in a bid to take market shares from one another. In just over a month, the oil crude price dropped to below 20 US dollars per barrel, prompting OPEC countries, allies, and the U.S. to come together and jointly lower their production in May 2020, which helped the price to slowly rise. Oil demand then started to rally in several Asian countries, such as China and India, which began to have more control of their domestic situation. In the most recent meeting in January 2021, OPEC planned further cooperation and agreed to tighten output by 7.2 million bpd to maintain market balance until oil demand rises to the pre-pandemic level. While the news of COVID-19 vaccines in several countries boosted the crude oil price to 50 US dollars per barrel, it remains to be seen whether they are effective and whether they will be able to pick global oil demand back up to 100 million bpd again.

Crude Oil Price Forecast for 2021

The Dubai crude-oil spot price will likely be within the range of 44-55 US dollars per barrel, considered low compared to the 60 US dollars per barrel in the pre-COVID-19 years. As a result of vaccine rollouts in several countries, it is projected that outbreaks will be curbed, allowing some business sectors to fully recover and pushing the oil demand in 2021 to rise to the pre-pandemic level of 100 million bpd by the end of the year. However, with increasing prices, crude oil producers will likely ramp up output, thus depressing the price. The total crude oil production of the U.S. was reduced to only 11 million bpd in late 2020 from 13 million bpd before COVID-19. It is expected that OPEC and its allies will monitor the situation and decide to increase or decrease production to maintain market balance and keep crude oil prices relatively stable as they have sufficient production capacity. There might also be an increase of about 0.5 million bpd of crude oil production from Libya and an additional 1 million bpd export from Iran compared to 2020, depending on the upcoming nuclear negotiation. Overall, the oil production of 2021 is expected to balance with demand and can be increased to meet a rise in demand.

Factors Affecting the Price of Crude Oil in 2020



Source: Platts & Reuters

Thai Economic Outlook 2021

Multiple sources have projected that the Thai economy will likely recover by 2.6-3.5% thanks to government spending, including consumption and investment, despite the relatively low GDP growth rate, which reflects uncertainty. The COVID-19 situation will likely remain the determinant of the direction of the global economy in 2021. As vaccine development is still beset by issues of supplies and access, Thailand will only be able to slowly open up and welcome international tourists in the second half of the year.

Industries will show a slow recovery, with three important issues to keep an eye on 1) As the tourism

sector will be severely affected, the government will need to consider more specific relief measures; 2) In the residential real estate sector, liquidity will remain an issue, and entrepreneurs will need to exercise prudence in launching new projects; 3) The automotive sector will show signs of recovery. Automobile manufacturers will need to consider a shift to cars of the future to maintain export growth and keep up with changes.

(Sources: Petroleum Refining Industry Club of the Thai Federation of Industries, PTT Group, and Office of the National Economic and Social Development Council)



Customers and Distribution Channels

IRPC focuses on producing fuels that meet the demand of its customers and comply with the standards of the Ministry of Energy. It also emphasizes distribution through the most profitable channels. The price of IRPC fuels corresponds to the market price. The Company works with its subsidiaries to devise the most beneficial marketing and sales. IRPC's Customers and Distribution Channels are as follows:

- **Direct sales to industrial operators**, such as car companies, cargo ship operators, passenger bus operators, and construction contractors, as well as subsidiaries and joint ventures of IRPC;
- **Wholesalers or Jobbers**, large and small, for distribution to other wholesalers and retailers;
- **Article 7 retailers large and medium enterprises** with their own oil depots who distribute the fuels bought through their own network to downstream consumers;
- **Exports** divided into marine exports to markets in Asia (Singapore, Cambodia, and Vietnam) and land exports to countries in the Indo China Peninsula (Southern China, Cambodia, Laos, and Myanmar) which accounted for 34% of all sales in 2020;
- **Bunkers**, which refers to the sales of Automotive Diesel Oil (ADO) to ships docked at one of the IRPC terminals;
- **Operators of the fishing industry** within the waters of Thailand (green diesel), of which IRPC has a 61% market share.

Distribution of Fuels

Channel	Percentage
1. Wholesales	20%
2. Exports	34%
3. Article 7 Retailers	44%
4. Industry Operators	2%

Source: IRPC Petroleum Business Division

Competition Strategies

IRPC's primary sales strategy is to emphasize that its high-quality petroleum products are manufactured in clean and standardized processes and come directly from the refinery. The Company also boasts the region's first sophisticated purchasing system called PDA on Mobile, which operates on the IRON platform. In addition, another strategy is to increase the number of customers and sales, while maintaining suitable marketing margins. Services of IRPC are as follows:

- Oil Depots: IRPC operates 5 oil depots around Thailand to cater to customers in different localities. The Rayong Oil Depot and the Phra Pradang Oil Depot only stay open around the clock. A retail center added to the Mae Klong Oil Depot in Samut Songkhram serves customers in Western and Upper Southern Thailand.

- Transportation: IRPC operates oil trucks throughout the country, together with marine vessels and berthing terminals for maritime customers.
- Service Personnel: Customers have access to dedicated teams of sale agents, sales coordinators, and customer service agents. Purchase orders are handled with SAP software, which allows information to be updated online in real-time. SAP solutions improve accuracy and standardize processes, culminating in enhanced efficiency and eliminating redundancy. Executives and operating staff can use the data obtained for further analysis and decision making. The company has also introduced the IRPC Oil on Net (IRON) platform, which it had developed to manage the sales of petroleum products electronically. IRON combines the capabilities of IRPC's supply chain management with its total business solution nature. It responds to customers' transaction needs and augments IRPC's business efficiency. Meanwhile, IRPC has continued to develop systems to support new phases and deployments in other sales channels.
- Quality Control: IRPC's technical staff provides solutions and relevant knowledge to customers. They also inspect the quality of products and services at all stations and depots, building trust.



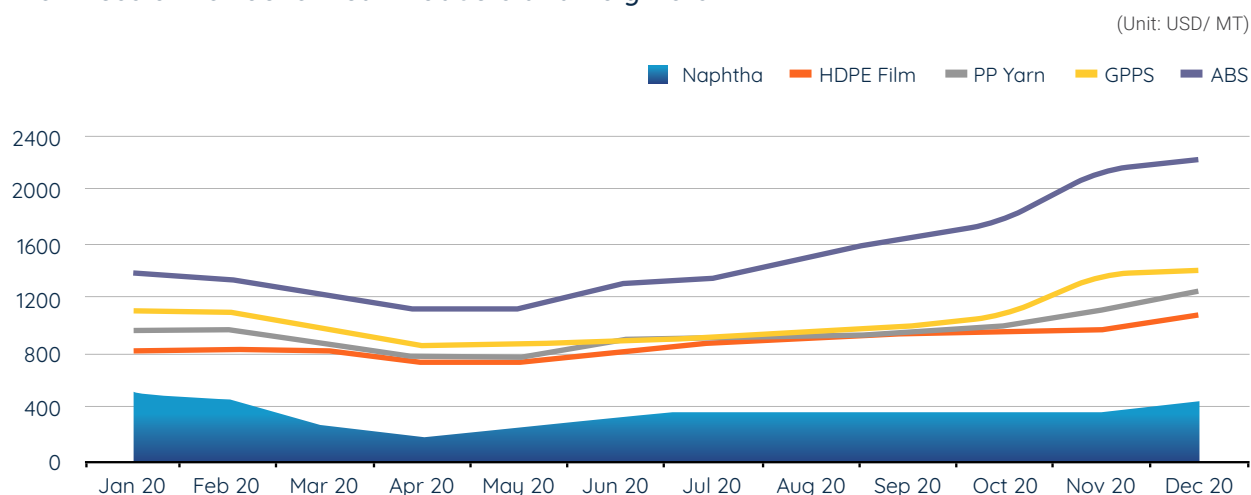
Petrochemical Market and Competition

Petrochemical Products

In 2020, Thailand's petrochemical industry was generally stable with a slight shrinkage, while the global economy shrank by 5-6%, primarily due to the COVID-19 pandemic, stringent lockdown measures, and social distancing, all of which reduced economic activities and severely dampened demand, especially in the second quarter, which showed the most significant shrinkage. Additionally, The climb in production capacities throughout the Asia-Pacific region, more specifically in China, Vietnam, Indonesia, and Malaysia, also led to the heightened regional competition.

However, the petrochemical industry showed much less shrinkage compared to many other industries because certain downstream products benefited from a shift in consumer behavior during the pandemic. These included medical and hygiene products; electronic appliances and electronics that supported working or learning from home; as well as food and beverage packaging that grew on the back of the burgeoning fast food and food delivery businesses. Another factor was the growing demand in ASEAN countries, especially Vietnam, Cambodia, and Laos, as manufacturers relocated their production bases to avoid the US-China conflict.

The Prices of Petrochemical Products and Polymers



Source: ICIS

The prices of petrochemical products and plastic resins in 2020 fell in line with the dwindling cost of feedstock (naphtha), which remained low, consistent with global crude oil prices. The drop was also attributable to the slowdown in demand for petrochemical products brought on by the economic downturn, especially in the first half of the year, such as final commodity goods and intermediate goods used in other manufacturing industries, as well as to

the fiercer competition prompted by increased regional production capacities.

The average price of propylene (PP) dropped by about 13% from 2019 to 936 US dollars per ton; high-density polyethylene (HDPE), by about 13%, to 862 US dollars per ton; and general polystyrene, by about 15%, to 1,012 US dollars per ton. Meanwhile, the price of naphtha plummeted by about 28%.

Thai Petrochemical Outlook 2021

The petrochemical market is a large, globally-connected market, and as such prices are determined by global demand and supply as well as by production costs. Because it is tied to several major industries, its growth typically follows the direction of the country's GDP. The Office of the National Economic and Social Development Council has forecast that Thailand's economy will grow at a rate of about 2.5-4.5%. Major supporting factors of the expected growth include COVID-19 vaccines, the recovery of tourism and exports, and the government's economic stimulus package. Nonetheless, there are a number of risk factors to monitor, including a rally in global trade; trade and technological conflicts between China and others such as the US, Europe, India, and Australia; and US trade and foreign policies.

Domestic demand for petrochemical products in 2021 will show a slight expansion of 2-4% brought on global economic recovery and the rebound in plastic resin demand thanks to the recovery of related industries, such as commodity goods, durable goods, electrical appliances, automotive, and construction materials. However, there will likely be a greater supply of certain petrochemical products throughout the Asia Pacific, particularly in China, Indonesia, and Malaysia, heightening competition in the region.

Competition Strategies

IRPC has balanced the needs of all stakeholders throughout the supply chain as well as those of customers, focusing on catering to all the needs, bringing benefits to all, and improving the quality of life. As a total business solution provider, IRPC offers not only products and services but also consultancy on a full range of areas encompassing material selection, production, application, product and process development, and troubleshooting, with the goal of enhancing the efficiency and quality of finished products, especially in high-potential industries, such as medical and healthcare, alternative energy, and electronics and appliances. Additionally, IRPC has

launched the Eco-Solution project as a plastic management model for the entire supply chain from production to finished products. In 2020, IRPC initiated "Prototype Cooperation Project of Single-Use Plastic Waste Management" to properly recycle plastic waste from KFC stores, thereby able to reuse and sustainably reduce environmental impact.

Price Strategies

The price of polymers correlates with several external factors, including the costs of feedstocks (crude oil, naphtha, and monomers); market conditions; demand and supply; domestic, regional, and global competition; and government policies. It is IRPC's policy to establish the price of its products based on these factors to ensure that the price is competitive, aligned with the market positioning of each product, and suitable for the area of distribution at the time.

Product Quality

All of IRPC's polymer products are ISO 9001 certified. Quality checks and quality controls extend across the entire production line, from the moment the feedstocks arrive at the finishing touches before the products are handed off to customers. Furthermore, IRPC's technical service unit offers advice on the most suitable polymer before a sales contract is signed and helps with aftersales support, including troubleshooting. Additionally, IRPC's research and development team actively develop product that cater to customers' needs.

With respect to environmental and occupational health responsibility, IRPC has introduced concrete policies on environmental conservation and employee and community safety. In addition, IRPC has received ISO 14001 and TIS 18001 certifications for all of its polymer products. Furthermore, its ethylene, polyethylene, polypropylene, and polystyrene plants have been certified to the Standard for Corporate Social Responsibility (CSR-DIW) by the Department of Industrial Works.



Product Diversity

IRPC produces over 1.2 million tons of polymers annually. These are divided into HDPE, PP, PS, EPS, ABS, and SAN. The Company also owns and manages a plant for color compounding and creating polymer composites within the same premises. The compounding and composites plant enables IRPC to offer customers a wide range of choices with a great deal of convenience and flexibility, meeting exacting specifications required for producing electrical appliances or automotive parts.

Communication and Public Relations Strategy

In 2020, IRPC organized various marketing activities to foster a positive image and good relations with customers and communities. The activities include the following:

- IRPC contributed support equipment and materials during COVID-19 outbreaks in collaboration with its customers. Spunbond fabrics made from PP were given to Vajira Hospital to produce personal protective equipment (PPE) for medical professionals. IRPC also supported the development and production of negative-pressure isolation chambers for distribution to hospitals nationwide.





- IRPC piloted a collaborative single-use plastic waste management program in KFC outlets to ensure that plastic waste was properly and efficiently recycled and reused. The program was part of IRPC's Eco Solution for the management of plastic products throughout the supply chain, from manufacturing to post-consumer plastic waste, to create a closed-loop

system that keeps plastic waste from leaking out and become a burden to society.

- IRPC joined a trade show at the "BCG: Economic Model towards Sustainable Development" general assembly, hosted by the Ministry of Higher Education, Science, Research and Innovation (MHESI).

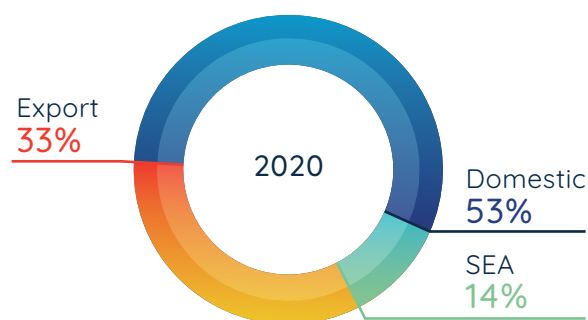


IRPC in collaboration with our domestic plastic product business partners demonstrate environmental responsibility stance on plastic waste. _____ +

IRPC also focused on alternative communication channels or social media, such as POLIMAXX FB Fanpage, Instagram, YouTube, and used them to convey important and beneficial updates as well as foster an understanding of plastic products among customers and the general public as a way to foster customer relations and a positive image of IRPC and its products.

Sales Channels

In 2020, it was the company policy to focus primarily on domestic sales, which accounted for 53% of the total sales. This figure was achieved mostly through the use of capable and experienced authorized retailers who had been IRPC's business partners for more than two decades. A good portion of domestic distribution was achieved through direct sales to manufacturers deemed to have good credit based on their readiness and ability to pay. In terms of exports, IRPC primarily focused on Southeast Asian countries - a market that showed consistent growth. Polymers sold to market



Source: Petrochemical Business Market Department, IRPC Public Company Limited

across Southeast Asia made up 14% of IRPC's total sales in 2020.



Power and Public Utilities

In 2020, the world was faced with the emergence of COVID-19 the pandemic. Governments across the world were forced to order lockdowns to slow the transmission, severely impacting the global supply chain that formed the backbone of globalization. The pandemic led to serious and prolonged healthcare crises, which inevitably plunged many countries into an economic crisis.

The impact was also felt in the power and public utility industry, particularly in Q2 as customers shut down their plants due to a severe slowdown in terminal markets. However, in Q3, as customers' businesses showed signs of improvement and began ramping up production, the power and utility industry started to see its revenue rebound to the normal level.

In addition, the power and public utility business was also affected by droughts in eastern Thailand, especially in Rayong, which prompted the government to order a 10% reduction of overall water consumption within IRPC Industrial Park from the quota. To comply with government policy, IRPC introduced various water management measures, one of which was to request that its customers cut their water consumption. These measures were crucial and were implemented in a balanced way with impact on the customers' businesses in mind. However, during the rainy season, the water level rose past the critical level. Also, as a backup plan, the government considered drawing raw water from nearby provinces with sufficient water supplies to Rayong to help combat future droughts. (Further details appear in "Water Management in IRPC Industrial Park" on pages 144-145.)



Ports and Oil Depots

The COVID-19 pandemic has triggered an economic downturn both domestically and internationally. IRPC projects that the situation will start to improve in Q3/2021, which will contribute to regional economic expansion. With large factories and industries in the region, IRPC's ports will see a higher volume of imports and exports and increased activity in its tank services.

The government's Made In Thailand program and safeguard measures have played a vital role in the recovery of the domestic steel industry. The volume of steel passing through IRPC's ports was thus higher than that of the previous year.

IRPC has also planned tank improvement to expand the range of products it can store to include crude oil and special diesel, among others, in anticipation of the Energy Ministry's policy to increase crude oil reserve from 4% to 5% and petroleum gas reserve from 1% to 2% in 2021. In addition, PTT Group's analysts have projected that crude oil prices will likely improve, which, when coupled with the promise of COVID-19 vaccines and economic recovery in 2021, will help the tank business attract more external customers. Higher

consumption of special diesel as a result of the easing of COVID-19 travel restrictions is also expected.

As part of its tank improvement plans to expand its services, IRPC will invest in the improvement of pipelines and storage tanks to take advantage of existing assets. Services for external customers will include storage tanks for crude oil and special diesel, among others.

Asset Management

A 90% cut of land and building taxes was announced on June 2, 2020, as a relief during the COVID-19 pandemic. IRPC paid approximately 9 million baht in land and taxes in August 2020. In 2021, if no additional governmental measure is announced, IRPC will be subject to land and building taxes at a reduced rate of 50%.

The development of WHA Industrial Estate Rayong (WHA IER) in collaboration with WHAID in 2020 experienced a setback as a result of COVID-19. As public consultation was delayed, commercialization has been postponed for a year from early 2023 to late 2023.

Revenue Structure



IRPC and its subsidiaries generated revenues from product distribution as follows: petroleum products at 67% of total net sales revenue i.e. diesel, gasoline, fuel oil, lube base oil, and asphalt; petrochemical products at 31% i.e. olefins, aromatics, and polymers. In addition, IRPC earned income from other businesses, accounting for 2%, mainly from power and public utilities. In 2020, IRPC's net sales revenues totaled 152,319 million baht as described below:

Type of Business	Operations/ % of shares held by IRPC	2018		2019		2020	
		Million Baht	%	Million Baht	%	Million Baht	%
1. Petroleum	IRPC Plc IRPC Oil Co., Ltd. (99.99%)	182,953	71%	153,451	71%	101,429	67%
2. Petrochemical	IRPC Plc IRPC A&L Co., Ltd. (57.48%)	72,739	28%	59,656	28%	47,457	31%
3. Other Business ⁽¹⁾	IRPC Plc	3,227	1%	3,470	1%	3,433	2%
Total net sales revenues ⁽²⁾		258,919	100%	216,577	100%	152,319	100%
Profit (loss) sharing from investment in associated companies and shareholding in joint-venture companies		679		363		333	

Notes:

(1) Other businesses are power and public utilities.

(2) Net sales revenues are from petroleum (excluding excise tax), petrochemical and power, and public utilities.

Domestic and Overseas Sales Revenue Structure

Type	2018		2019		2020	
	Million Baht	%	Million Baht	%	Million Baht	%
Domestic Sales Revenues	147,034	57%	122,008	56%	89,678	59%
Overseas Sales Revenues	111,885	43%	94,569	44%	62,641	41%
- CLMV	20,428	8%	18,563	9%	13,876	9%
- Other countries	91,457	35%	76,006	35%	48,765	32%
Total net sales revenues	258,919	100%	216,577	100%	152,319	100%



“

Three strategies for
business growth:
Power of Growth,
Power of Digital,
and Power of People.

”

Strategic Projects for Business Growth _____ +



Throughout 2020, IRPC operated under 3 strategic plans conforming to its business direction, namely Growth, Digital & Process and People. At the same time, the Company also labored to balance the good social and environmental factors, as well as maintaining Good Corporate Governance, committing to the goal of becoming Leading Integrated Petrochemical Complex in Asia. The summary of strategic plans executed in 2020 are as below:

IRPC concentrates on increasing production capacity and efficiency, high-value product development through innovation excellence, business expansion, and development through collaboration with allies. The major strategic projects are as follows:

1. Strengthen IRPC Project

Strengthen IRPC Project are the group of projects that implement Recovery Transformation Service (RTS) to improve work process, focusing on Cross Functional System and project tracking tools, including efficient

human resource management and organizational structure. All the aforementioned factors would lead to the increase of Return on Investment Capitals (ROIC). The major projects in this category are:

1.1 Building on the success of the Everest project, the Everest Forever (E4E) project was set up to enhance the efficiency of IRPC's activities, increase the profitability of its existing business, bolster its Organizational Health, and maintain its competitiveness in Operation, Integrated Supply Chain, Commercial area, Procurement area, HR area, and Corporate area.

1.2 IRPC 4.0, a project that adopts a wide range of digital technologies to elevate the efficiency of IRPC's operations and digitalize all customer-related service.

In 2020, E4E and IRPC 4.0 projects together created value-added of over 2,261 million baht against the goal of 1,799 million baht, which can be detailed into these following sub-projects:

OPS 4.0 Smart Operations with artificial intelligence (AI) for production control planning, which generated more 1,333 million baht of profit against the goal of 541 million baht (E4E: Unit Operation & energy project profited 547 million baht, E4E: Maintenance & Reliability project profited 107 million baht, IRPC 4.0: OPS 4.0 profited 679 million baht).

- CMM 4.0 Responsive Customer-Centric Digital commercial and marketing operations, which generated more 539 million baht of profit against the goal of 824 million baht (E4E for petroleum business profited 239 million baht, E4E for petrochemical business profited 54 million baht, E4E for port and tank services profited 21 million baht, IRPC 4.0: CCM 4.9 project profited 225 million baht).
- ISC 4.0 Advanced Analytics Tools for an integrated supply chain that balance customers' needs with feedstock availability, which generated more 386 million baht of profit against the goal of 434 million baht (E4E project profited 376 million baht, IRPC 4.0: PRO 4.0 project profited 10 million baht).
- PRO 4.0 Lean Procurement process with more efficiency, less redundancy, and improved competitiveness, which generated a cost reduction opportunity of 147 million baht against the goal of 142 million baht (IRPC 4.0: PRO 4.0 project helped with the cost reduction of 147 million baht).
- ERP 4.0 IT infrastructure that supports IRPC's digitalization of information and organizational excellence, which generated 3 million baht of profit against the goal of 27 million baht. All the profit came from E4E: Corporate Area project.

1.3 Breakthrough Projects (BTPs), aimed at senior management and their contribution to the Company's growth as key drivers. The projects center on the implementation of best practices from the former projects to the new ones within a 4-year plan from 2020-2023, with 53 sub-projects categorized into 6 following business groups: (1) Refinery (2) Olefins (3) Polyolefins (4) Polystyrene (5) Port, tank farm and assets management and (6) other business groups (including Engineering and Maintenance, Factory Audit, Accounting and Finance, and Quality and Safety). In 2020, the following Breakthrough Projects were conducted:

- UHV Production Unit: UHV Revamping Diesel draw off from HYVAHL & RDCC running at 120% capacity project
- PPC Production Unit: ATOM, a joint venture with JPP of Mytex polymers to increase sales and gain access to the automotive market, in support of the growing electric vehicle industry
- Refinery Unit: The strategies for domestic diesel market capability enhancement, crude oil optimization, conversion costs reduction and plant energy efficiency improvement
- Petrochemical Unit: The increase of high-value products (HVA Product)
- Production Support Unit: Power & Steam Optimization, Asset utilization and Reliability Excellence
- Digital: A focus on Advance Analytics development in factories and expansion of commercial platform through PLASKET.COM

Breakthrough Projects Number



2. High-value Products Project

High-value Products Project, with a focus on high-growth industrial products through Cross Function or Agile New Way of Working Team (ANT) process, to drive the Company to achieve the established goal.

2.1 Ultra Clean Fuel (UCF) project which was launched to align the government's standard for Euro V diesel and to enhance competitiveness in the future domestic and international diesel markets that require higher standards. Its commercial operations will be ready by 2023.

2.2 Galaxy project, which fosters collaboration with business allies, building on existing foundation and creating new mutual benefits through investment and joint venture for business synergy for future growth.

2.3 R&D Excellence project was developed to support high-value products through research and development excellence, focusing on core business and industrial sector with high-growth potential, as well as exploring new business opportunities with New S-curve.

2.4 New Organization Agile Human (NOAH) project is a Human Resource Management System development for fast and smooth management, cultivating corporate values, empowering employees, selecting suitable personnel for the right job, creating motivation, and encouraging leadership. The development of these traits would lead to a good corporate culture for the Company's future growth. NOAH project consists of the following operations:

- The most cost and time-efficient operating model is incorporated into business operation, which includes target power consumption-oriented production, technology and digitalization, analytical tools, improvement of other compensation and benefits systems according to the changes in cost structure.
- Learn & Unlearned, Upskill and Reskill approach which grants IRPC's employees in all levels who wish to continue working with the Company the access to basic skills adjustment courses for better adaptation to new and modern working environment.

- New Performance Management and Rewarding approach is set to promote and create corporate culture driven by excellent personnel to become the Top Quartile People for Top Quartile Performance organization.
- Talent Acquisition is conducted to increase more talented and qualified personnel in all level to support IRPC's business missions.
- "Choices of Life through package" is offered to all employees as an opportunity to design their own packages and alternatives when leaving the Company before retirement. IRPC makes sure that its employees are well taken care of with suitable support from the Company.

3. Other Strategic Projects

3.1 Floating Solar Power Plant Project is a 12.5-megawatt power plant that converts the solar energy to electricity, lessening IRPC's reliance on conventional power for its production line. The Floating Support came from the Company's own HDPE research and development. This project also makes use of the Company's reservoirs' surfaces, contributing to a reduction of 10,000 tons of CO2 Emission per year. The power production has started from June, 2020.

3.2 ABS Powder Expansion project focuses on ramping up to ABS powder productivity of the Polymerization Business Unit by 6,000 metric tons per year, as well as the improvement of the ABS powder quality. Commercial operations are to commence in the second quarter of 2021.





4. Financial Strategies

IRPC aims for the efficiency in financial management, namely reasonable and suitable financial structure, funding and financial costs that is able to support the Company's operations and investment projects. This also includes complete, correct, and up-to-date information disclosure to shareholders, analysts, investors, financial institutions and the general public on a regular basis. The major financial strategies in 2020 are listed as below:

Short-term Loans which are:

- Renewal of loan agreement between IRPC and PTT Public Company Limited for efficient management of financial liquidity between companies in PTT Group, with 10,000 million baht and 1,500 million baht amount of loans.
- Renewal of 30,000 million baht Domestic Letter of Credit (DLC) with local financial institutions for crude oil payment period extension with PTT Public Company Limited to 90 days.

Financial risk management

- Procurement of financial derivatives is one way of structuring foreign-currency finances with loans/ debentures/ derivatives in order to balance the foreign-currency profit (Natural Hedge).

“

IRPC promotes and cultivates risk management as part of corporate culture for our stable and sustainable growth.

”



Risk Management



The Company has structured risk management by appointing the Risk Management and Internal Control Committee, chaired by President and Chief Executive Officer with high level management as members, and the Hedge Committee responsible for monitoring market situation, risk management of crude price and volume, raw materials, petroleum and petrochemical products, transportation prices and financial transactions. In addition, the Company has appointed the Risk Management Committee with 5 members of the Board of Directors, in charge of formulating policies governing corporate risk management to ensure that important risks are at a manageable level, as well as assuring stakeholders of the Company's achievement of its projected objectives and goals. The Company has adopted international standards such as ISO 31000: Risk Management - Principles and Guidelines and the Committee of Sponsoring Organizations of the Treadway Commission (COSO) - Enterprise Risk Management together with the principles of good corporate governance, internal control system, business continuity management system, anti-corruption, Sustainability Management

and Operational Excellence Management System. To make risk management more effective, certain tools have been developed, e.g. Key Risk Indicator, a leading indicator to help alert the Company prior to risk emergence, the Value at Risk Assessment Tool (VaR) to help the Company determine appropriate risk management measures.

As for the promotion and cultivation of risk management as part of corporate culture, the Company has raised the awareness, knowledge and understanding of the Board of Directors, executives and employees to realize the importance and necessity of implementing risk management standards and frameworks in order to allow the organization to securely advance in a sustainable manner. The implementation guidelines are as follows: The Board of Directors specified risk management principles and policy for the execution of executives and employees by identifying, analyzing, evaluating and determining risk management measures, which would be submitted for approval of various committees earlier mentioned. After the approval, related parties would put them into practice

with continuous follow-ups by both operational and executive committees. Risk management approaches would be regularly reviewed and updated. More importantly, there must be communication for continuous knowledge and understanding via various channels e.g. Board meeting, executive meeting, department meeting, workshop, e-mail, or e-learning notification, training. At present, the Company has urged the GRC (Governance, Risk Management & Internal Control, Compliance) to integrate the overall management and enhance risk management efficiency, reduce job redundancy and mutually make the most use of information.

Summary of Important Risk Management Operations

1. Price Volatility Risk

The uncertainty and fluctuation of Thai and world economic conditions, in particular, the global widespread infection caused by the coronavirus, or COVID-19, as well as international political issues such as trade war between the United States and China, unrest in the Middle East, and natural disasters have impact on demand and supply of crude oil, an important feedstock of IRPC, which has to be imported a lot each year for producing petroleum and petrochemical products. Owing to the imbalance of demand and supply, the market price changes or fluctuates and significantly affects the income and profit of the Company.

In 2020, the spread of petroleum products and feedstocks fell significantly while the one of petrochemical products and feedstocks increased compared to the previous year, such as polyolefins product price rising in response to the demand of the medical supplies sector. Risk management guidelines to reduce the impact on the Company's operating results and profitability are as follows:

1.1 Continuous procurement of new crude oil, allowing more choices from a variety of crude at a lower cost, by using linear programming (LP) to select the right crude to get the best benefits for the Company.

1.2 Reduction of production costs by managing the most efficient use of energy and fuels, for example increasing the efficiency of heat transferring and storing in industrial furnaces, improving efficiency of waste gas management, which helps reduce hundred of million baht expenses per year.

1.3 Close monitoring and analysis of price situation, including forecasting future price changes and reporting to the executives on a weekly basis for their preparedness and timely action.

1.4 Inventory management of crude, petroleum and petrochemical products at the appropriate level to reduce the effect of stock gain or loss.

1.5 Entering into a derivatives trading agreement by targeting price, volume and period of appropriate risk management, consistent with business plan under the supervision of the Hedging Committee and the Risk Management Committee.

1.6 Evaluation and review of crude procurement and related processes to enhance efficiency and reduce emerging risks in the operating process through Risk Control Matrix (RCM), enabling operators to be aware of their duties at the full extent with transparency and efficiency.

2. Risk from Oil Price War

The conflict of major oil producers between the OPEC, led by Saudi Arabia, and Russia, that could not agree to oil output cut, with Russia insisting on producing the same volume while the OPEC did not lower the production either, thereby leading to oil oversupply or production over demand. In addition, the occurrence of COVID-19 infection significantly decreased global oil demand, resulting in a sharp drop in oil prices, from about 60 US Dollars per barrel at the beginning of January 2020 to only about 20 US Dollars per barrel in April. The Company's operating results were consequently affected with a significant oil stock loss. This risk as well as price risk management as earlier mentioned has been managed with stricter actions, including additional measures as follows:

Risk Management Guidelines

2.1 Arrange more frequently from every two weeks to weekly meetings to closely monitor and analyze the situation as well as immediate calling if necessary.

2.2 Establish a Strategic Crude by increasing crude purchase during low-price periods to increase the opportunity to use cheap crude during the crude price rise.

3. Operational Risk

The Company has managed operational risks of production and production support processes as emerging risks may affect different groups of stakeholders, personnel and property loss, including the loss of business opportunities, such as life safety risk of employees and contractors working in the Company's business areas, environmental risk, production continuity risk, risk from emergencies and crises and water management risk. The following are risk management guidelines:

3.1 Safety risk from accident for personnel and related parties such as production control errors, transportation, operation negligence, of which consequences may result in the loss of life and property, loss of reputation and impact on the Company's operating results. To prevent the occurrence of unexpected events, the Company has thus promoted safety culture by setting a policy and operations under the Operation Excellence Strategic Plan. For example, safety management system implementation in accordance with the OHSAS - 18001, Process Safety Management, Incident Management System (idMS) to formulate database and analyze the root cause of incidents, providing knowledge and raising safety awareness for employees at all levels, contractors and wage earners, implementing the Outsource Safety Man Development Project and the Goal Zero 365 days Project to campaign for accident reduction.

3.2 Plant reliability risk for efficient and smooth operation with no unplanned production shutdown, which affects goods delivery to customers not as

planned and may not gain their trust, leading to order break. To mitigate the risk, the Company has strictly set up the Zero Unplanned Shutdown program, with repeated incident prevention system, comprising cause analysis, prevention measure specification and monitoring through incident analysis system. In addition, there is a comprehensive examination of plant machinery and equipment conditions at various risky points (Plant Health Check), as well as a plan to continuously inspect the entire system.

3.3 Environmental risk caused by the Company's production process with the release of various volatile hydrocarbon compounds such as carbon dioxide, benzene, dust, which affects the health of employees and communities around the business area, causing complaints, litigation or dispute. The Company has prepared mitigation approach by defining organization-wide environmental management integrated within such frameworks as ISO 14001 environmental management system and ISO 5001 energy management system, as well as implementation and strict follow-ups of changes in related laws, regulations and standards.

3.4 Community and social risk that may arise from conflicts or different opinions of the community towards the operations of the Company, bringing about complaints, litigation against the Company or protests to close the establishment of the Company. Various measures have been implemented such as creating understanding and good relationship to gain confidence and trust from the communities around the operating area, maintaining good public image, establishing guidelines for corporate social responsibility from business processes (CSR in process), implementing human rights plan and assessment to ensure that the Company's business operations adheres to good human rights principles and practices both domestic and international, preparing Social Impact Assessment (SIA) and Social Return on Investment (SROI) reports through the Lam Sai Yong Project.

3.5 Supply Chain Management Risk: If the management is inadequately efficient, it may result in the inability to compete in the rapidly changing market conditions, causing too-high operating costs, untimely production of products unmatched with customer needs, complicated and slow work processes. In order to mitigate such risks, the Company has introduced 12 elements of the Operational Excellence Management System (OEMS) e.g. strategy and leadership, management, operational risk, change management, etc. to ensure the efficient and effective operations are sustained. External experts were invited to assess the OEMS for further development and improvement.

3.6 Business continuity risk caused by such threats as natural disasters, attacks from malicious people, cyber attack, which may disrupt business processes. In order to prepare and mitigate the impact of business process interruption, the Company has introduced the Business Continuity Management System (BCMS) in accordance with the international standard of ISO 22301 Business Continuity Management System as a guideline in preparing the implementation, maintaining and developing Business Continuity Plan

(BCP) to deal with various critical and emergency situations, including conducting drills as planned.

3.7 Drought risk, which will result in insufficient water in the production process, causing the production break in some factories, affecting product delivery to customers, including the loss of revenue and profits from product sales. In order to reduce the emerging impact, the Company has managed to have sufficient water resources for production and established guidelines to mitigate the effects of conflicts from increasing demand for water from industries, agriculture, expanding urban communities, including the tourism sector. In order to optimize water management, the Company uses 3R measures i.e. Reduce, Reuse and Recycle water, and built 5-million-cubic-meter water storage to reserve water for use in the production process during the shortage of natural water sources. In addition, the Company has joined PTT Group in attending meetings, monitoring and coordinating with government agencies to jointly manage water in order to adhere to the public sector policies and for optimum benefits.



The Company, in collaboration with the First Naval Area Command, set up security drill for ports and international ports in collaboratively investigating maritime threats and oil spill prevention and solution in Rayong Province.



4. Financial Risk

4.1 Foreign Currency Exchange Risk. The change of Baht to the US dollar currency has both direct and indirect impacts on the Company's income and expenses as revenue from petroleum and petrochemicals products and raw material costs, most of which is crude, is received and paid in Thai Baht while the world market price reference is set in US dollars (USD linked), including loan for investment projects.

The Company has risk management guidelines to mitigate the impact of such exchange rate fluctuations, by structuring the loan and debentures in foreign currencies to balance the natural hedge income by managing the USD debt to be appropriate to the foreign currency-based income. The risk management operations are under the supervision and monitoring of the Risk Management Committee to comply with the policy and reduce the impact at an acceptable level. In addition, the simultaneous foreign exchange swap of export revenue and expenditure for raw materials is implemented in USD to reduce the difference in the exchange rate of the offer, thereby reducing the impact of exchange rate fluctuations.

4.2 Funding & Liquidity Risk. The Company has investment plans to continuously expand the business, as well as the obligation to repay the loan and the debentures that are due, thereby requiring

adequate and on-time funding with reasonable financing costs. The ability to acquire external funding depends on many factors such as operating results, financial position, credit rating of the Company, petroleum and petrochemical industry, including economic and money market conditions, both at home and abroad. The Company may have liquidity risk, causing the inability to obtain sufficient working capital.

The Company managed the risk by securing fund in line with our business plan and structuring the capital to maintain our important financial ratios at appropriate level, with good corporate governance and follow-up of factors affecting or related to funding, thereby enabling the Company to obtain funds as planned at reasonable financing costs. At present, IRPC has loan facilities from financial institutions comprising 23,410 million baht short-term loan as working capital and credit line under the Inter-Company Borrowing and Lending with PTT Plc. for efficient financial liquidity management within PTT Group i.e. 10,000 million baht borrowing and 1,500 million baht lending.

5. Capital Project Risk

A significant large-scale investment project at present is the Ultra Clean Fuel Project (UCF) to improve diesel quality from the Euro 4 standard to the Euro 5 one to meet the government's regulations that will come into effect in 2024. The Project requires investment for

plant construction to improve oil quality to meet legal requirements, thereby adding value to the product. Previously, the Company must export high-sulfur diesel with low value. This has converted it to a high value low-sulfur diesel, which will raise the Company's turnover. The Company has prepared the following risk management guidelines for project management.

5.1 Prepare marketing and sales plans to adequately accommodate all products with suitable sale channels to ensure their saleable and sufficient support market, able to increase benefits to the Company as projected.

5.2 Provide various resources such as human resources, finance, construction area, and infrastructure preparation to support and drive the project to efficiently achieve its goals.

5.3 Establish system and process to closely monitor work progress and quickly solve problems to ensure that the achievement of project implementation goals in all dimensions, i.e. project duration, budget management, project quality, safety, and cooperation with the public sector agencies and communities.

6. Organizational Capability Risk

The Company believes that the development of personnel to be excellent is very important to stable and sustainable business operations. Therefore, it has set the objectives for enhancing and developing excellent corporate potential, including developing personnel to be both smart and good through corporate core values. The personnel must be equipped with both knowledge and capabilities, which is defined as a core strategy of the organization according to the NOAH Project. The management guidelines are as follows:

6.1 Cultivate corporate culture through IRPC DNA for all employees to adhere to in order to strengthen their potential for efficiency and effectiveness.

6.2 Improve work processes for enhanced efficiency, reduce operating costs, introduce digital system for better speed, correctness and unnecessary procedure cutback.

6.3 Develop knowledge management system and add appropriate knowledge and expertise to keep pace with changing situations, especially professional knowledge important and necessary to drive corporate strategy in both short and long terms to achieve the specified results.

6.4 Establish a succession plan for important positions, especially senior management and specify systematic performance assessment process, with smooth job transfer with no impact on business operations to accommodate employees who are retiring or resigning.

7. Policy and Regulatory Risk

The Company has raised the awareness of employees in strictly complying with policies, laws and regulations, including monitoring and preparation of policies, laws, regulations from the government, as well as international laws, such as the Personal Data Protection Act (PDPA), the Oil Fuel Fund Act, oil reserves, tax laws, labor laws, anti-bribery guidelines for state officials, etc. Non-compliance or negligence may affect the Company's business operations, leading to fines, litigation, or even worsened to license revocation. The Company has thus established risk management guidelines as follows:

7.1 Follow up news from the public sector that may affect the implementation or business operations, and study in advance, prepare an action plan or guidelines for managing risks resulting from changes of policies, laws and regulations in order not to affect business operations.

7.2 Establish a database system of laws, regulations, Acts related to business operations of the Company and affiliates, by analyzing important changes for easy and efficient implementation of users.

7.3 Join Thailand's Private Sector Collective Action Coalition Against Corruption (CAC), establish anti-corruption risk assessment in all forms, and formulate risk mitigation guidelines. In addition, by focusing on transparent management, the Company communicated

the 8 principles for private sector and juristic person to prevent bribery of state officials issued by the Office of the National Anti-Corruption Commission to executives and employees for organization-wide practices.

7.4 Strictly undertake the procedures of the Land Code for revoking the condition of ways and

watercourses, exchange of public land located on the Company's expanded business area to ensure legal compliance and minimize impact of conflicts with the community and lawsuits. The Company has set up an ad-hoc working group to undertake integrative implementation and mitigate risks.



8. Digital Security Risk

Today, the threat of cyberattacks and cybercrime is on the rise in a variety of forms, which may cause serious damage to business operations. The Company is aware of the possible risks as the information technology systems are used as a major tool in business operations. When attacked, the digital systems may be damaged, leading to interruptions in business processes such as purchasing, product sales, production, transportation. The Company has thus set proactive measures to prevent and reduce the chance of being attacked by ill-intentioned persons as well as reducing the impact of attacks until the digital system is damaged, able to quickly recover the system. The risk management guidelines are as follows:

8.1 Acquire ISO 27001: Information Security Management System, the information security management system standard, with implementation in accordance with related requirements, laws and regulations.

8.2 Annually practice a disaster recovery plan in case of system failure which may be caused by external attacks, damaged equipment or other disasters.

8.3 Manage the organization's Security Operation Center (SOC) to be efficient with continuous development in terms of software, hardware and personnel, scrutinize access to various systems of the organization whether there is any unusual accessibility or any outside intrusion. There must be a process to quickly respond to intrusion along with raising knowledge of personnel on effective prevention.

8.4 Enhance knowledge and skills for security personnel by participating in training, seminars, knowledge exchange with external agencies, including knowledge test with the Computing Technology Industry Association (CompTIA) for ICT Security Certificate.

8.5 Create knowledge and awareness for employees regarding the safe use of computer equipment and software, avoid infection, malware, or any other type of attacks, with a team in advising, educating and alerting, including solving problems for all employees.



9. Risk from Coronavirus Disease (COVID-19) Impact

The global widespread of COVID-19 has had extensive impact on business operations. Financial institutions around the world forecast that the global economy in 2020 would plunge into the worst economic crisis since the Great Depression during the 1920s, which could affect the Company's business operations in a wide range of industries. There might be temporary or permanent shut down. The refining and petrochemical industries have also been affected. Possible incidents and impacts included the following: the Company may be ordered by government agencies to close the establishment if employees are found infected, construction or machinery maintenance project may be delayed due to procedures added by related public sector's regulations, sales and revenue may decline, the set target may be missed due to changing consumer behavior (e.g. less travel affecting oil sales, lower product purchase affecting plastic pellet sales). Therefore, to manage risk from COVID-19, the Company has focused on keeping our employees and related persons safe from infection and keeping the liquidity for business continuity during the crisis, with the following Risk Management Guidelines:

Risk Management Guidelines

9.1 Set up committee and working group for COVID-19 prevention and remediation (War Room COVID-19) to formulate efficient preventive measures and resolve

problems affected by COVID-19, to ensure zero sick or dead number.

9.2 Define work from home measures by preparing equipment and work systems, allowing employees to efficiently work from home, reducing congestion at work, keeping a distance, to reduce employees' risk of COVID-19 infection.

9.3 Be stricter in getting in and out of the workplace or establishment, by screening employees or outsiders before entering the establishment with temperature measurement, mask wearing. In addition, measures stipulated by the public sector must be strictly observed.

9.4 Set corrective action in case any employee is suspected or ill with COVID-19 disease. Quarantine must be implemented with systematic classification of suspicious employees. Standby employees must be assigned for replacement not to affect important operations of the Company.

9.5 Secure additional cash flow from various funding sources for emergency use, including setting debt tracking measures in order not to generate bad debts which may affect working capital in the Company.

9.6 Establish a business continuity management plan (BCP) for serious infectious diseases with regular drills, development and improvement to ensure business continuity of the Company.

10. Emerging Risk

The Company has analyzed the surrounding and external factor trends that may affect the Company in the long run during the next 5 - 10 years in various aspects such as politics, economy, society, environment, law, technology. These future trends acknowledged by the Company included lower oil consumption due to the advent of electric vehicles (EV), Climate Change Risk, the public sector's promotion of less plastic use.

Risk Management Guidelines

10.1 Risk from consumers' changing behavior from petrol cars to electric cars, which is faster than expected, mainly caused by change in technology for the better and lower selling price, as well as more government promotion to use electric cars, which would result in the Company's declining sales volume of oil and lubricants. The Company has therefore formulated a long-term management plan by creating a strategy to transform petroleum products into petrochemical products for the highest value. Implemented since 2014, the Upstream Project for Hygiene and Value Added Products (UHV) was to modify fuel oil to polypropylene and convert polypropylene into polypropylene and polypropylene compound products. The plant construction was completed and the Project is currently commercialized. In the future, studies will be conducted to improve the condition of heavy naphtha and aromatics, a component of gasoline, to be Paraxylene or other substances for higher added value.

10.2 Climate Change Risk: At present, natural disasters occur more frequently and more intensely, whether it be drought or flood, partly due to climate change, which has affected natural resources, including living things worldwide. Human being is a crucial cause of climate change through the use of cars and air conditioning or heaters. These human activities emit greenhouse gases into the atmosphere. The Company has therefore put in place guidelines to prevent and mitigate the impact of such risks, for example the study of the application of carbon pricing in assessing the cost-effectiveness of various future projects; establishing measures to reduce the intensity of greenhouse gas emissions, such as increasing energy efficiency in the production process by adopting the

ISO 50001 standard, to reduce fuel combustion by 2% target per annum; carbon footprint as a pilot volunteer according to the assessment guidelines of the Carbon Footprint Organization (CFO) in collaboration with the Department of Industrial Works and the Greenhouse Gas Management Organization (Public Organization); promoting alternative energy such as using electric buses for employees in conjunction with PTT Group; solar cell for power generation project. The Company also takes action to reduce the effects of drought or flood through sustainable water management plan e.g. water resource management project, community water management project.

10.3 Risk from government measures to reduce the use of plastics, which have a direct impact on the Company's revenue from sales of plastic granules as the government tends to issue laws and orders prohibiting single-use plastics in the future. In addition, the social sector is currently more active and aware with widespread campaign to reduce the use of single-use plastic bags. To cope with the impact, the Company has modified the production process for HDPE plastic products, used to produce single-use plastic bags, to produce pipe products used in infrastructure construction industry, housing industry. Risk assessments for other plastics that may be banned in the future are also carried out to find further solutions.

10.4 Risk from changing customer behavior in trading and financial transactions: Customers are more likely to trade through online channels, instead of regular channels or dealers. As a result, the sales of the Company's products decreased due to the more convenient, faster and cheaper channel and this tends to increase every year. Therefore, the Company has managed the risk by establishing a joint venture with Guangzhou Saiju Performance Polymer Ltd., a specialist in trading in the Chinese market, to set up a digital platform business, in which the Company holds 55% stake and the Chinese capital 45%. The PLASTKET.COM platform, officially launched to trade in February 2020, has been developed as the first plastic e-commerce platform in Thailand and ASEAN to bring AI technology to ease the development of plastic e-commerce platform, trading plastic pellets, chemicals, and semi-finished and finished products.

“

IRPC Innovation Center offers 15 projects of innovative products from R&D that can be commercially produced and marketed at 130 million baht of marginal profit.

”



Research and Development for Excellence



Survival and Resilience in the New Normal Through Innovation Plus

“

The IRPC Innovation Center strives to elevate its research and development (R&D) capabilities and become a world-class fast follower. ”

Under the research and development (R&D) excellence policy and the 8-pillar Strategic Innovation Framework, the core objective of the IRPC Innovation Center is focused on the application of innovation for survival and resilience in the new normal. The IRPC Innovation Center has executed R&D initiatives in accordance with IRPC's product portfolio and technology roadmap and industrial focus, as detailed below.

1. The competitiveness enhancement of IRPC's core businesses, focusing on automotive, electric and electronics, packaging, and construction industries, as well as cost optimization.
2. The creation of value added to specialty products through adjacent business, focusing on medical and hygiene, circular economy, specialty chemicals and additives, and nanomaterial industries.
3. Seeking new business opportunities in the new S-curve businesses, focusing on smart electronics and energy storage industries.

In 2020, the IRPC Innovation Center launched 15 innovative products from its R&D initiatives commercially, accounting for 130 million baht in marginal profits. Some applications of these products are detailed below.

1. Food packaging: Catering to the growth of food delivery businesses in the new normal

Polypropylene FL203D for biaxially-oriented film is IRPC's R&D innovation with properties as required by customers. It was successfully developed thanks to IRPC's agile team and its ability work closely and promptly respond to customers. The innovation generates approximately 70 million baht per year in marginal profit and has earned IRPC a 45% share of this domestic market.



Biaxially-oriented polypropylene film +

2. Products for electric vehicle parts responding to global technological trends

Ultra-high molecular-weight polyethylene (UHMW-PE) U710B is used to produce battery separators in lead-acid batteries. Thanks to its molecular weight of 7 million grams/ mole, it has high resistance to abrasion and puncture. This product generates about 12 million baht in marginal profit per year.



Polyethylene U710B and battery separators in lead-acid batteries +

3. Circular economy products

IRPC is aware of global environmental issues and has thus applied circular economy principles to its R&D. Through its innovations, the IRPC Innovation Center has successfully developed post-industrial recycled resin (PIR) into a new plastic product named 1601MHRP. In the initial phase, the output of this product for market is 60 tons per year. IRPC also collaborates with its customers to take back used plastics and produce post-consumer recycled resin (PCR) for automotive parts and packaging.



Graphene mask

4. COVID-19 and its impact on the medical industry

The IRPC Innovation Center has researched and developed a graphene mask. Made with fabric coated with conductive graphene ink, the mask is anti-bacterial, anti-dust, and comfortable to wear thanks to good heat dissipation. This is IRPC's first commercial product from a new S-curve business and also its first business-to-consumer (B2C) product.

To develop more special grade products, the IRPC Innovation Center has continuously and systematically introduced new research projects. Currently, IRPC's projects under research and development are worth as much as 428 million baht in total and evenly distributed across the timeline.

The center has three de novo research projects for the new S-curve industries. The first is the conductive ink, which is also used in the commercially available graphene mask. In addition, the center has produced a prototype that can be applied to radio frequency identification (RFID) and is being tested for use as a conductive primer in the color compounding process of automotive parts. The second research project is organic light-emitting diodes (OLEDs), which can be developed into a prototype of a photoluminescent product label. The last is the lithium-ion battery, which is being tested in collaboration with other leading research institutes overseas. These projects in the new S-curve industries are operated as startups to quickly launch products to the market and overcome the limits of traditional business models.



IRPC Innovation Plaza in the IRPC Innovation Center



In 2020, the IRPC Innovation Center was home to 128 researchers and developers, accounting for 2.5% of IRPC's personnel, and received a budget of 0.6 percent of IRPC's petrochemical revenue for its R&D activities. Currently, the center is fully functional, capable of supporting researchers and equipment, and ready to welcome visitors and business contacts.

IRPC's intellectual property falls under three categories:

- Copyrights: IRPC has registered 11 copyrights, six of which are computer applications, and five are publications.
- Trademarks: IRPC has registered 218 trademarks in 21 countries.
- Patents: IRPC has registered 14 patents and is working on registering 24 more. These encompass production processes, polymer products, petroleum products, and chemical products.

The IRPC Innovation Center employs an open innovation and technology investment strategy to reduce both research time and risks in commercial manufacturing, expand on existing businesses, and seek new business

opportunities. In pursuit of this strategy, the center focuses on four core advanced material technologies: high value added products, energy vehicles and energy storage systems, urbanization materials, and clean energy, and collaborates with leading domestic and international research institutes, such as the Vidyasirimedhi Institute of Science and Technology (VISTEC), the Japan Advanced Institute of Science and Technology (JAIST), Haydale Technologies Thailand, and companies in PTT Group. IRPC has also joined hands with the Faculty of Medicine Vajira Hospital, Navamindradhiraj University to establish a center for analyzing and inspecting medical personal protective equipment (PPE) in the form of a social enterprise (SE) to define standards for medical products and increase IRPC's opportunity of selling its medical-grade plastic products to the market.

IRPC recognizes the significance of research and development on the enhancement of its competitiveness and its future business sustainability. In 2020, IRPC earned two National Innovation Awards:



Two National Innovation Awards: Distinction Prize for Innovative Organizations and First Runner-up Award in the Social and Environment category. _____ +

- A Distinction Prize for Innovative Organizations in the Large Organization category was given to IRPC in recognition of its systematic organization-wide innovation management, which encompasses clearly-defined strategies that correspond with its business strategies; systematic and clear innovation management processes that focus on agility and cross-functional collaborations; adaptation to the new normal as a data-driven organization; investment in innovations, including infrastructure and equipment and machinery for specialized research and development projects; and the development of advanced skills in research personnel.
- The First Runner-up Award in the Social and Environment category for "Innovative Plastic for People with Disabilities," a R&D collaboration with the Prostheses Foundation of H.R.H. the Princess Mother. The project made use of IRPC's translucent polypropylene 3340H, which made it possible to quickly and accurately adjust the socket of a prosthetic leg to perfectly fit the amputation stump and thus minimize friction burns and pains. Leftover plastic from prosthesis production could also be recycled and remolded into new products.

In 2020, the IRPC Innovation Center focused on improving and elevating the analysis and testing standards of the Analytical and Laboratory Center for feedstock quality control and product quality assurance before commercialization in line with the AL Excellence (Analytical and Laboratory Center Excellence) strategy. The initiative consisted of four core plans:

- The reduction of the product analysis and testing period by improving the work process and adopting digital technology, such as online analyzers
- High-accuracy analysis and testing
- The development and improvement of laboratory equipment, instruments, and facilities to enhance safety and bring them up to date
- The management of personnel to enhance their capabilities in support of diverse responsibilities

The Analytical and Laboratory Center also earns additional income by offering analytical testing services to external customers. This is made possible as the center has testing systems according various standards, has been certified for its laboratory capacities, and is equipped with state-of-the-art and specialized equipment. In 2020, the center generated a total of 10 million baht in revenue.



“

Define sustainability management strategy to strike a balance of business operations, as well as establish corporate governance policy that takes into account the best interests of all stakeholders.

”



Driving Business for Sustainability



Sustainability Management

The Sustainable Management Office oversees IRPC's sustainable strategies, ensuring its operation to be in accordance with the Company and PTT group's sustainability management framework and international standards. Led by the Sustainable Management Committee and Good Corporate Governance Committee, the office is responsible for policy planning of sustainable management.

IRPC declares its sustainability management policy which serves as a framework for international standards management. The office also devises sustainability management strategies based on Operational Excellence

Management System and Thailand Quality Awards (TQA) frameworks. Its goal is to strike a balance between business growth and stakeholders' expectations. The office also considers good corporate governance principles, one of which stipulates that a sustainable business shall act in the best interest of all groups of stakeholders and treat all stakeholders equitably and fairly in accordance with business ethics concerning the responsibility towards stakeholders to maintain balance and ensure sustainability.

Sustainability Management Excellence



Stakeholder Engagement

IRPC has a keen awareness of the stakeholders' expectations. The Company engages both internal and external stakeholders to ascertain their perspectives, interests, expectations, concerns, and success factors, all of which has a strong impact on IRPC's businesses. IRPC uses these findings to determine the issues needed to be addressed to maintain sustainable business operations, as well as information to direct the Company's future strategies.

Materiality Assessment for Sustainable Development

IRPC gathers important information and issues concerning both the Company's long-term and short-term business operation from stakeholders under the

context of governmental regulations, and megatrends, such as epidemic, cyber security, climate change, and plastic waste management. These matters are deemed to determine corporate risks, sustainability policies, strategic directions, and business operations. Additionally, IRPC always analyzes and reviews its previous year's performance to identify issues relating to organizational sustainability activities. All of these issues are ranked in order of importance to business sustainability. In 2020, IRPC focused on the following important topics; climate change, circular economy, and value added society. All of these issues serve as the Company's business sustainability framework. (The full detail of IRPC's performance and issues relating to sustainable business operation will be disclosed in the Company's 2020 sustainable management report and on IRPC official website.

Assessment Result of Issues Relating to IRPC's Sustainable Business Operation



Sustainability Disclosures

In an effort to show transparency and earn trust from the stakeholders, IRPC prepares an annual sustainability report presenting the performance against targets assessment on maintaining economical, social, and environmental balance. The report follows the key principles according to the Global Reporting Initiative (GRI), which are Sustainability Context, Materiality, Completeness, and Stakeholder Inclusiveness. Additionally, the report quality must be in accordance with the Principles for Defining Report Quality, which

is an international standard for sustainability report. The principles are accuracy of information, positive/negative performance balance, clarity of information for all stakeholders, comparability on trends and operation data, reliability of information, and timeliness of report for stakeholders' decision making. Information disclosures are reviewed by an independent external auditor to ensure accuracy and completeness adhering GRI Standard, increasing the trust of stakeholders.

Change for Share Project

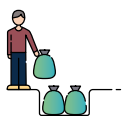
IRPC places an emphasis on social and environmental issues, particularly the solution to plastic waste reduction. Following the Circular Economy Management guidelines, the Company has initiated “Change for Share”, a project to raise more social-awareness on waste separation and transformation of used plastic into a variety of value-added products. IRPC, in collaboration with Khor Khua Corporation Limited, a start-up company working on social enterprise, started a project to recruit local people to collect used plastics from local community, sort, and recycle them into school supplies for the schools in need and prostheses production material.



Change for Share activities between 23rd October – 6th November 2020 and 27th November – 11th December 2020 at Energy Complex Building



More than
150 participants
interested personnel and
employees alike



Over
600 kg
of landfill plastic waste reduced



Approximately
200 kg
of carbon dioxide equivalent
greenhouse gases reduced

Human Rights Impact Assessment

IRPC has bases of operations in different regions of Thailand. Its business activities have created complexity in the value chain and involved various stakeholders. As a result, respect for human rights has become a major driving force for the organization. IRPC needs business guidelines that ensure the protection of human rights according to local laws and international best practice. To this end, the Company has devised a strategy and plan to manage risks that may arise as a result of its unintentional violation of human rights, including protection and remedial mechanisms. IRPC encourages its staff members and nearby communities, as well as any other stakeholders, to actively participate in discussions to foster mutual understanding and co-operation in everyone's best interest. Thanks to its persistent efforts, in 2020, IRPC was once again named a winner of the Human Rights Role Model Organization Project under the category “Business Organizations with Outstanding Human Rights Performance” from the Department of Rights and Liberties Projection, Ministry of Justice for the second consecutive year.

SD Day 2020: Dare to Change, then to Share Activity

In 2020, the Sustainability Management Office organized its annual activity "SD Day" under the concept of "Dare to Change, Then to Share" on 27th November 2020 at Suan Son meeting room, Energy Complex B Building through virtual meeting on Microsoft Team. The initial aims of the activity were to raise awareness on sustainability, as well as celebrating the success in maintaining the Dow Jones Sustainability Indices (DJSI 2020)'s Oil and Gas Refining and Market membership for the seventh consecutive year. This marks as IRPC's milestone for its accomplishment in sustainability management and the Company determines to maintain this achievement in a long term. The event included a lecture for inspiration (SD Talk/ #dailysustainability) led by Noon Siriphun Wattanajinda, actress and designer who produces eco-friendly products that help create social impact. In addition, the 2020 Eternity Award for

departments with the highest scores in the DJSI assessment were presented by the President and CEO in the following categories: (1) Eternity Award Gold Class: Tax Strategy by Accounting Department (2) Risk and Crisis Management by Corporate Risk Management Division, Strategic Planning Department (3) Climate Strategy/ Water-related Risk/ Environmental Policy and Management System by Environmental and Sustainability Project Management Department/ Public Utilities Management within IRPC's Industrial Area by Operation Excellence and Corporate Operation Management Departments (4) Supply Chain Management by Purchase/ Raw Material Procurement and Trading Departments and (5) Eternity Award Silver Class: Operational Eco-efficiency/ Occupational Health and Safety by Safety, Occupational Health and Environment Department



Cooperation and Knowledge Exchange on Carbon Management

IRPC has great concerns over climate change issues which are causing major impact on the environment, business operation and existence of every life on the planet. In 2020, IRPC has joined and cooperated with Thailand's national climate change authorities to proactively drive sustainable industrial development and management by various projects as follows:

- On 17th February 2020, the Company attended project launch and signed a MOU on Phase 9 Expansion of Carbon Footprint Project Industrial Organizations, together with The Federation of Thai Industries, Thailand Greenhouse Gas Management Organization (Public Organization) (TOG) and other 32 pilot companies participating in the 2020 program. The project is an expansion of carbon footprint

calculation and tracking within the industrial sector. Participating companies can submit their Carbon Footprint for Organization (CFO) certification from the TGO. This is the first step leading to effective and sustainable carbon footprint management, as well as equipping the industrial sector for green house gas emission license system in the future.



- On 4th March 2020, IRPC participated in the project launch seminar and MOU signing on Thailand's 7th year Carbon Offset Project in Support of Domestic Voluntary Carbon Market, together with Thailand Greenhouse Gas Management Organization (Public Organization) (TOG), Kasetsart University, and other 8 pilot organizations joining the 2020 program. The project's objectives are to expand the carbon offset,

support domestic voluntary carbon market, and encourage carbon offset activities in the participants' internal events. IRPC was one of the participants who requested for carbon footprint certification assessment through the Company's 2020 Annual General Meeting of Shareholders. As a result, the meeting was a carbon offsetting event, an equivalent to Carbon Neutral status by the TOG's standards.



- On 16th September 2020, IRPC's, together with 4 other leading companies' representatives, participated in "Experience and Perspective Exchange on Carbon Footprint Organization and Carbon Neutral Event Including Carbon Offset in

Service Sector" discussion. The event was a part of the Carbon Offset Expansion Project follow-up organized by the Center of Green Business Strategy (Vgreen), Faculty of Environment, Kasetsart University.

Additionally, the Company has also received a Carbon Neutral Certification from Carbon Footprint Events such as zero-carbon meetings and seminar, as well as a Carbon Footprint for Organization (CFO) certification of the Company's water supply management in Baan Khai Water Filtration and Water Treatment Plant, the first, the second and the third Total Wastewater Treatment Plants. The certification honor was awarded by the Permanent Secretary of the Ministry of Natural Resources and Environment at "Roi Duang Jai Global Warming Reduction" event.



- On 26th November 2020, IRPC's representatives joined the project launch of "Evaluation and Raking of Sustainable Low-Carbon Business", organized by Thailand Greenhouse Gas Management Organization (Public Organization) (TGO), as well as participating in "Experience Exchange on Organization with Sustainable Low-Carbon Operation" discussion.
- On 3rd December 2020, IRPC, as one of Thailand's six leading organizations, received a certification and the honor to join "Industry Knowledge Enhancement Program on Carbon Pricing and Investment in Greenhouse Gas Reduction" project. The Company won this certification over with its carbon pricing mechanism application to drive climate change strategies, maximizing the opportunity and access for green funding such as clean energy project and new innovation integration. IRPC, together with TGO, World Bank and advisors of the Creation and the Carbon Trust, cooperated in design and experiment of various Internal Carbon Pricing (ICP) mechanisms in order to assess climate risks and drive green house gas reduction towards the target. Furthermore, the Company partook in "Experience Exchange regarding Internal Carbon Pricing (ICP) Application" discussion, with the goal to deepen the understanding towards this topic among interested personnel and general public.



Sustainability Indices

By applying the frameworks of the Operational Excellence Management System and Thailand Quality Awards to sustainability management, IRPC can boast excellent corporate governance at the policy and operation levels. Its transparent sustainability disclosures build confidence among stakeholders. Additionally, the Company has undergone numerous sustainability assessments by internal and external agencies. In 2020, IRPC was named a member of the Dow Jones Sustainability Indices (DJSI) in the Oil and Gas Refining and Marketing sector for the seventh consecutive year, and a Gold Class Honor in 2021 Sustainability Year Book. In addition, the Company was selected as one of the Thailand Sustainability Investment: THSI 2020 in resource management category from the Stock Exchange of Thailand for its outstanding demonstration of sustainability in Environment, Social and Governance (ESG) in operation process, as well as the emphasis on ESG and Emerging Risks management. This includes the execution of Business Continue Plan in order to continue the Company's operation in a crisis, innovation development, and environmental-friendly resource management which enables cost efficiency, as well as continuous efforts on human resource development within the organization.

Member of
**Dow Jones
Sustainability Indices**
Powered by the S&P Global CSA

Sustainability Award
Gold Class 2021
S&P Global

Corporate Social Responsibility



Corporate Social Responsibility (CSR) has always been a part of IRPC's sustainable growth strategy. The CSR activities are relevant to the Company's business, with its structure covering Corporate Environmental Governance (CEG), human rights, international standards, and shared interests with stakeholders. IRPC aims to create added value and change for the betterment of society and local communities. The implementation of these principles enables sustainable coexistence between IRPC industrial plants and local communities,

as well as creating good reputation for the Company, conforming with sustainable development goals and the United Nation's global citizenship guidelines.

The Board of Directors sets aside an annual CSR budget, engendering the stakeholders' confidence. The budget is divided into three groups: educational projects, projects for local communities surrounding IRPC's industrial area and nationwide social projects.



Key Corporate Social Projects in 2020

Education

Vidyasirimedhi Institution of Science and Technology and Kamnoetvidya Science Academy

IRPC, together with other PTT group companies, is one of the founders of the Vidyasirimedhi Institution of Science and Technology and Kamnoetvidya Science Academy. The Company has been regularly providing funding to these organizations since 2014 to contribute to the incubation of excellent homegrown Thai scientists and researchers.

IRPC Technological College (IRPCT)

IRPC Technological College is the Company's vocational college for industrial and commercial technicians, located in the spacious area of more than 50 rai within IRPC's industrial area. The environment and facilities are equipped for students' learning and development continuity. Opened in 1995, the college carries the concept of a school-factory learning ambience where students are able to learn directly with instructors from the real workplace, providing access to modern equipment and machinery. Students can also gain real-world experience through an internship program at IRPC or other subsidiaries of the PTT Group.

With continuous effort on the educational improvement, IRPCT has since garnered recognition for the outstanding quality of its educational management and its graduates. The college has been certified for the Bilateral Education Management Standard of Excellence (Excellent Model

School), as well as being Thailand's first industrial technology vocational school to receive the gold-level certification from Asia Pacific Accreditation and Certification Commission (APACC), an ASEAN-based vocational education certification body.

IRPCT participates in vocational workforce development, in support of the government's EEC project, by becoming an EEC model college to contribute in the manpower production for petrochemical and energy fields. The two on-going advanced vocational education programs for workforce development are Petrochemical and Energy Engineering Competency (i-PEC) and IRPCT Robotics & Mechatronics (i-BOT), in cooperation with other organizations of the PTT Group. These skilled workers will be the future support for the ECC's New S-curve business.



IRPCT's 2020 Milestones

- Accredited as a member of the Thai Private Sector Collective Action Coalition Againsts Corruption (CAC)



IRPC Technological College welcomed Education Minister Mr. Nataphol Teepsuwan along with executives from the Education Ministry for the inauguration of the Digital Living Library. ——— +

- Mr. Noppadol Pinsupa, President of IRPC PLC. and Chairman of IRPC Technology Co., Ltd. and Dr. Photiwat Paopongchuang, Managing Director and Licensee of IRPC Technological College received a certificate and commemorative pin "Sema of Contribution" as a benefactor to the to the Ministry of from Mr. Natthaphon Thipasuwan, Minister of Education.



Students' Achievement Highlights

- Mr. Thanatat Hanviriyakul, diploma student of IRPC Technological College received His Majesty the King's royal student award from Her Royal Highness



Princess Bajrakitiyabha Narendira Debyavati Kromluangrajasarinisribajra Mahavajrarajadhita at Dusit Palace Bangkok.

- His invention "Alarming Buoy" was created to send out warnings for Rip Current, a powerful and dangerous current of water occurring along the shore. When the Rip Current flows back to the sea, it cuts through the narrow channel between the rocks or dunes in a faster speed than when it hits the shore. Apparently, Rip Current is a major cause of fatalities for beach visitors around the world each year.

Top 10 Vocational College in ASEAN by 2025 with 2(X) Excellent Model

IRPCT's vision is to become one of the top 10 vocational colleges in ASEAN by 2025. To realize this, the college has formulated a strategic plan entitled "2(X) Excellent Model", comprising the following two strategic pillars:

1. Excellent Model School (EMS): to maintain its presence as the center of vocational excellence that generates new generation of specialists in petrochemical, energy and other industries to supply the country's demand

2. Excellent Social Contribution (ESC): to make academic, vocations, research, and innovation contribution to society, as well as serve as a short-term training center for reskilling and upskilling. In 2020, IRPCT has made significant progress in this strategic plan as follows:

- Signed an MOU between IRPCT and IRPC Clean Power company to build a solar powerplant in the college's area for the clean energy consumption within the campus. Furthermore, an alternative energy learning center for the local community will also be established as a part of the Green College strategy.



- Organized IRPCT Jump Start Academy project to enhance students' professional skills in realistic environment and to develop an Upskill curriculum for Robotic Engineering specialists to support the manpower needs of the EEC projects.



Community

Pun Nam Jai Clinic

Located within the premises of the IRPC Community Network Learning Center, the Pun Nam Jai Clinic provides local communities around the IRPC Industrial Park with free public healthcare and treatment. In 2020, there were 3,051 patients utilizing the clinic.

Mobile Clinic

In collaboration with Queen Sirikit Hospital of the Naval Medical Department, IRPC has launched a mobile clinic to provide primary healthcare for patients who are unable to travel to hospitals or the Pun Nam Jai Clinic, which operated its service 4 times in 2020, treating 968 patients. (Due to COVID-19 pandemic, the mobile clinic had to stop its service during the outbreak). The services include treatments for musculoskeletal conditions, respiratory illnesses, gastrointestinal symptoms and dental extraction.

Health Promotion Fund for Communities in the Eco Industrial Zone

Since 2016, IRPC has started a health promotion fund to finance healthcare services for communities within a 5 km radius of its industrial park. It is these communities' right to manage this fund under the guidance of public health specialists. In 2020, the Health Promotion Fund Committee approved 26 projects proposed by the communities, all of which met the established criteria.

Hand Washing Products

IRPC supported and educated the local communities about the production of hand sanitizer. To help generate more income into the community, IRPC has signed a 3-year contract (2019-2021) with Owat Pro & Quick Co., Ltd. to purchase 250 liters/ month of hand washing product from the local community, which equals 17,500 THB of income generation per month.



Community Enterprise Promotion

IRPC has been providing support for community enterprise groups in the hope to improve the quality of life for communities around its industrial park. In 2020, IRPC helped promote an organic farming group in Na Khwan subdistrict towards the vision of becoming “The Kitchen of Rayong Province”. Their products were marketed and merchandised at TOPS supermarket, Rayong Central department store, generating 38,970 baht income to the group.



Groundwater Bank

IRPC equipped the local communities around its industrial park with the knowledge of “Groundwater Bank”, particularly the water management and the method of adding water to the soil to raise the ground level, which will result in sufficient water supply for agriculture and consumption. IRPC plans to operate groundwater bank project by building 20 ponds (5 ponds per district). In 2020, pond construction was completed in the following areas:

Ban Lang Subdistrict	5 ponds
Cheng Nern Subdistrict	5 ponds
Na Kwan Subdistrict	5 ponds
Taphong Subdistrict	5 ponds



Community Development Volunteers

IRPC encourages its employees to apply their knowledge and skills to the Company’s community-initiated activities, with its goal to develop areas surrounding the industrial park, such as Tree Rattanaram Temple development, Lam Rung Rueang beach cleaning, and Nong Chok Convent School development. These activities benefit society and foster volunteerism among IRPC employees. It also forges a network of co-operation and the Company’s culture of corporate social responsibility (the CSR DNA). In 2020, about 2,025 employees participated in volunteer work, spending an equivalent of 18,580 volunteer hours in the following areas:

Local Community	67
Temple	7
School	4
Health Facility	1
Mangrove Forest	2
Local Forest	1
Beach	3



IRPC Community Development Volunteers participating Lam Rung Rueng beach cleaning activity in Rayong Province in 2020. The collected garbage weighed more than 6,000 kilos in total. +



Employees of IRPC’s lubricant mixing plant, Phra Pradaeng and Maeklong Oil Terminal helped make face shields and donate drinking water and alcohol sanitization to the COVID-19 screening points at Phra Pradaeng District Office, Khru Nok Temple, and Bang Ja Keng temple in Samut Prakan Province. +

Community Learning Center

IRPC has established a community networking and learning center in Rayong Province, with the goal to transfer knowledge, promote and develop the community's environment, career building, and local economy, as well as creating a platform to build good relations between the Company and local community members. There is a rotation of various club activities each month such as cooking, yoga, science, English, mental arithmetic, oratory, Taekwondo, and other DIY workshops. In 2020, 128 activities were held, with 36,297 learning center visitors, weekend activities participants and meeting room users in total.



Mangrove Forest Preservation

- Phra Chedi Klang Nam Mangrove Forest: IRPC planted 24 Bruguiera gymnorhiza trees (Red Prasak Daeng) around observation tower at Phra Chedi Klang Nam Mangrove Forest Ecological Learning Center, along with giving out lectures for faculty of Environment Architecture (international course) students from Chulalongkorn University.
- The restoration and promotion of ecological biodiversity of Klong Kon Peuk mangrove forest. With good cooperation from both IRPC's employees and the local communities' members in IRPC's industrial area, various activities such as planting 300 mangrove trees, releasing 1,500 fish and 12,500 shrimps were made possible.

IRPC also strives to create awareness and positive attitude towards the Company's business operation. Therefore, IRPC puts an effort on pro-active public relations (PR) to constantly communicate the Company's news and information through diverse media channels such as newsletters, video, CSR story, brochures, radio and cable TV advertisement, Facebook, Line, and Youtube.

Community Scholarships

IRPC provides educational opportunities through the Scholarships for the Community Project. In 2020, the Company awarded 299 scholarships worth 658,000 baht to the students with good academic records and behavior, whom were selected by the boards of each community and educational institutions in 5 areas within IRPC's industrial zone. 81 scholarships were provided to 27 schools, 20 to vocational schools, and 198 to local communities.

Pro-active PR

In addition to visiting and building good relationship with the stakeholders in the Company's industrial area,



School For Senior Citizens

To create essential skill and knowledge enhancement for potential income generation and networking in community, IRPC has founded a school to provide education and improve the quality of life for senior adults. In 2020, various classes and workshops such as homemade jelly making, phone case and hand bag craft, community enterprises, hand sanitizer making, hygienic masks and straps craft, as well as health care education for elderly were held throughout.



The Corporate Social Responsibility for Happiness and Sustainability in the Industry (CSR-DIW)

IRPC has implemented and integrated SDGs 17 sustainable development principles through various public construction projects, with 11 projects established in 2020 as follows:

- Health and well-being promotion projects, with over 2,888 households (10,905 people) benefited from the project through improvement of health and recreational parks, construction of nursing equipment storage room, improvement of sport grounds, and mosquito repellent spraying.
- Sustainable clean water projects which focus on the improvement of water supply system in 3 different villages, benefiting 278 households (1,270 people) in total.

- Development and renovation of public building and facilities in local communities through the construction of storage rooms, additional construction of leisure pavilions and improvement of sound system. 5,009 households (19,638) benefited from these projects.



- Water supply system projects at Baan Nong Phaya and Baan Kon Nong villages, Baan Lang Sub-district, Mueang District, and Baan Chak Mahad village, Bangbut Sub-district, Baan Kai District, all in Rayong Province.
- Storage rooms construction project at Baan Nong Hin village, Tapong Sub-district, Mueang District, Rayong Province.



One Stop Service Screening Clinic



IRPC is aware of the important duties and sacrifice of the medical personnel since the outbreak of COVID-19. Hence, the Company decided to collaborate with Rayong Hospital to design and construct a Modular Diagnosis Room/ Ari Clinic with international standards, under the name of "Rayong Ruam Jai Phat Building". The main purpose is to reduce the chance of respiratory infections among medical personnel and those in risk. As a One Stop Service facility, it ensures safety and convenience for the new normal situation and contributes to local community's quality of life improvement. The clinic consists of disease screening building, five positive pressure rooms, one for medical records, one for dispensary and cashier, and three for doctors. There are also three negative pressure rooms for patients, waiting area and two units of toilets. In August 2020, IRPC has granted ownership of the clinic

to Rayong Hospital, and the operation began on the 3rd of December 2020. As of January 2021, there have been over 2,800 people coming for treatment.



The clinic's nurse on service in screening Clinic.

Projects For Society

IRPC Prostheses Project

The IRPC Prostheses Project was born from the Company's desire do good for society sustainably through its business expertise in a way that would create shared value. Since 2011, IRPC has been donating about 20 tons of polypropylene (PP) pellets per year to the Prostheses Foundation of Her Royal Highness Princess Mother. These pellets are the raw material needed to manufacture prostheses and related components, which the foundation provide free of charge to amputees in need. As of 2020, IRPC's PP pellets have gone into the making of 29,013 prostheses.

Additionally, IRPC and the foundation have also collaboratively researched and developed 3340H copolymer polypropylene for prostheses and related parts. This material is see-through, which results in perfect fit and much less time in fitting the prosthesis to an amputee, which consequently helps reduce the pain and frictions for the wearer. The 3340H copolymer polypropylene was awarded the first runner-up of 2020 National Social and Environmental Innovation Award (for large organizations) from the National Innovation Agency (public organization).

Prostheses for Youths

IRPC has organized Prostheses for Youths project, in cooperation with Chiang Mai Prostheses Foundation. IRPC employees participated as coordinators between parents and youths in need of prosthetics, taking them to get free-of-charge prostheses or modify the size of existing ones to rightly fit the amputee as they grow each year.



Thanaphat Dejarat, a paraplegic youth from Rayong province has been taken care of by IRPC's Prostheses Project since 6 years of age until present age of 16 years. +

Lam Sai Yong Model Project

IRPC has applied its knowledge in water management in the hope to solve water shortage problems in Thailand's arid areas by betterment of water management and storage system for the dry season. This particular project started in 2014 in Lam Sai Yong Sub-district, Nang Rong District, Buriram Province, and has since expanded this model application to Ubon Ratchathani, Uttaradit, and Udon Thani Provinces. Currently, IRPC has updated the Lam Sai Yong Model with the Water-Food-Energy Nexus. This improved model aims to effect change and minimize the impacts of water shortages from climate change and water crisis, strengthening resilience for local communities' environmental livelihood, as well as creating new network partners for social project implementation with the government, private sector, and non-profit organizations.



Lam Sai Yong Model Project at Disability Empowerment Center in Udon Thani Province. +

Baan Muang subdistrict, Udon Thani

Since 2017, IRPC has established the Disability Empowerment Center at Tha Muang Sub-district, Baan Dung District, Udon Thani Province as a career promotion center for disabled people who lost their jobs from farming water shortages. The Company has formulated a long-term development plan for agricultural model, adhering the sustainable economy principles. The center's area of approximately 200 rai has been developed and managed into a systematic agricultural and animal farming area, setting a model for agricultural knowledge learning for the disabled. It currently employs and cares for 51 disabled persons who farm and raise farm animals. Their assigned jobs are subject to their physical abilities and personal aptitude.

IRPC executed the following activities in 2020:

- Dredged and expanded two reservoirs to collect rainwater and runoff. The total storage has increased to 27,000 cubic meters of water that can be used for farming activities
- Installed a 4.6 KW solar power plant, together with solar powered pumps and 12 on-ground and water-tower tanks for agricultural use and consumption within the center
- Installed a 470 m pipeline to transport the water to the tanks in various location across the center
- Built a steel-frame water tower to replace the old, dilapidated structure
- Renovated handicap restrooms and built wheelchair ramps per universal design principles



A disabled in the Disability Empowerment Center at Udon Thani Province, working on garden plantation of local vegetables for drought season. +

- Built an egg-laying chicken barn over the fish pond, bio-fertilizer building with a pigpen
- Built an 800 m cowboy fence to divide farmland from the animal farm
- Renovated the residence for the disabled and trainees
- Connected the solar power system of the pump with the power line of the center
- Built a semi-free range boar stall surrounding an area of 300 sqm. The forest-like environment and natural water source is suitable for wild boars raising, reducing the congestion and their stress, which contributes in more breeding among wild boars

Sai Yong Sub-district, Buriram Province

In 2020, IRPC continued to develop more water reservoirs for the Lam Sai Yong Model Project at Baan

Nong Yang, Lam Sai Yong Sub-district, Nang Rong District, Buriram Province due to the less rainfalls since 2019, causing drought and water shortages. The plan included two new groundwater wells for consumption and agricultural use and solar powered pump installation. The construction period was from January to February 2020, and the operation started on the 20th of February 2020. The project is estimated to result in approximately 1,620 m³/ month water storage, benefiting around 352 households and 1,500 rai of agricultural areas. The solar powered pumps also contribute to the electricity expense, saving up to 4,000 baht/ month. In addition, the project helps raise awareness towards sustainable water management and resilience for dry season, the maximization of water resources usage, and last but not least, the participation and harmony within the community members.





“Pan Kan” Project

IRPC’s employees in Bangkok and Rayong offices joined “Beautiful Dresses for Students Funding” project by donating dresses that are still in good condition to be sold at “Pan Kan (Sharing Society) Charity Shop” by the Yuwaphat Foundation. The money generated from the dress sales (with no expenses deduction) was donated as scholarships to students in need. This charity was conducted between November 2 -13, 2020.

Apart from donation of dresses, clothes, and other goods which still remain in good, saleable condition by IRPC’s employees, personnel from other organization working at Energy Complex Building also joined the charity.

The “Pan Kan” society staff sorted all the dresses, clothes and goods donated and set the price to be sold at their charity shop “Pan Kan Shop”. The donation sum is as follows:

- 331 dresses and 1,233 clothes donation amount 110,140 baht
- Other goods 371 pieces donation amount 18,490 baht

In addition to providing scholarship and funding for students in need, “Beautiful Dresses for Students Funding” project also raised awareness towards “Reuse” concept. Second-hand clothes are environmental-friendly as they help save water used in garment production process, reduce water pollution from garment industry, and most importantly, contribute greatly to the reduction of greenhouse gas emissions, energy consumption, textile waste, and pollution from garment production process.

Moreover, IRPC also donated 600 document files in good condition and 320 face shield equipment worth 18,490 THB to “Pan Kan Charity Shop” for scholarships and educational funding of youth in need.



Quality, Security, Safety, Health, and Environment Management



IRPC is committed to business excellence and effective management. The Company fosters sustainable growth by maintaining a balance between its economic, social, and environmental objectives. Its operations are aligned with international practice. Its quality, security, safety, health, environment (QSSHE) and energy management policy is as follows.

IRPC and its subsidiaries operates an integrated petrochemical and refinery business and strives to achieve excellence in quality, security, safety and health, environment, and energy management in order to ensure its sustainability. To this end, the Company has introduced the following policy:

1. IRPC is systematically managed. It adheres to the six principles (known as "P-E-O-P-L-E") of the Operational Excellence Management System (OEMS), which encompasses the 12 core elements. Additionally, IRPC encourages and supports the use of quality management tools throughout its

organization. These tools increase the Company's productivity and ability to deliver products and services of value that meet the expectations of stakeholders throughout the supply chain.

2. IRPC has systematic risk management plans in place. In addition to specifying risk controls and risk reduction measures, these plans also demonstrate IRPC's social responsibility through its execution of security, safety, occupational health, environment, and energy management throughout the supply chain and in every organizational process. The Company's risk management plans also include change management, due diligence, project engineering, maintenance, research and development, organization-wide potential development, partner management, innovation management, and procurement and delivery of products and related services. All of this protects all parties involved from accidents and safeguards life, assets, information, and business continuity.

3. IRPC complies with relevant laws, regulations, agreements, requirements, and standards, including those pertaining to quality, security, safety, health, environment, and energy management of the entire supply chain. IRPC also complies with environmental control requirements that apply to its customers' products.
4. IRPC develops goals and implementation plans to control possible risks and reduce their impact on significant aspects of its operations. These plans conform to international standards and best practice in the petrochemical and refinery industry, such as the 7 Rs, engineering controls, water resource management, pollution management, waste management, greenhouse gas management, energy management and conservation, biodiversity management, partner management, green chemical management, human and labor rights management, and process safety management (PSM). The Company reviews, monitors, and audits these processes to ensure their continued improvement.
5. IRPC cares about and promotes good hygiene, occupational health, and work environment among its workforce and the surrounding communities. Executives at all levels are responsible for the achievement of IRPC's objectives and goals. IRPC encourages every employee to adhere to the policy and serve as role models. The Company ensures that all necessary resources are sufficiently available to employees to facilitate its implementation and the development of quality, security, safety, occupational health, environment, and energy management systems in every process. IRPC also communicates the results of policy implementation to all stakeholders.

Quality Management

The Operational Excellence Management System (OEMS), jointly developed and shared by entities within the PTT Group, is the heart of IRPC's management. Besides the 12 core elements, it encompasses four evaluative components that measure the effectiveness of the entire system-namely, content, deployment, conformance, and performance.

To enhance its operation, IRPC has applied digital systems to the development of management systems and tools, in line with the principle of continuous performance improvement (CPI). Examples include the development of the web application e-MoC (management of change) for controlling impacts from changes and maximize safety and efficiency, and the use of effective chemical management - a system that compiles and controls safety information of all chemicals, including those used in production and delivered to customers. The system complies with domestic laws and UN's GHS (Globally Harmonized System for Classification and labeling of Chemicals) standard.

IRPC also utilizes quality tools, such as Total Productive Maintenance and Management (TPM), Quality Control Circle (QCC), and Kaizen activities, to enhance efficiency and productivity through participation of employees at all levels. The tools are integrated into the OEMS for total value chain management and focus on product quality, safety, occupational health, and the environment to meet the needs and create satisfaction for all stakeholders.

The aforementioned initiatives have earned the Company an Industry Award in Quality Management for the fourth consecutive year.



IRPC participating in a workshop to fight COVID-19 in Rayong Province.



Meeting in the 24-hr emergency control center.

Safety Management

With regard to safety management during the COVID-19 pandemic in 2020, IRPC prioritized safety and prohibited any activities deemed a threat to personal safety and production safety. In other words, safety was the most important criterion in the consideration of all activities. In addition, good occupational health and safety are guaranteed to every employee and contractor working for IRPC because human resources are an organization's most valuable assets. The ISO 45001 standard for occupational health and safety applies to all levels of the Company. On top of its safety policy, IRPC has initiated numerous activities and programs to promote the paramount importance of safety among its employees. Its ultimate goal is to become a Zero

Accident and Zero Emergency Organization. The Company's safety-oriented activities and programs are as follows:

1. IRPC has developed the Behavior Safety Management (BSM) program to promote a culture of safety and raise safety awareness among its people. As a systematic safety management program, BSM applies to everyone at IRPC, ranging from management to operatives. In 2020, the system was equipped with additional functions, including Regular Behavior, i-CAREs Work Behavior, and My Alert. Thanks to continuous efforts, IRPC's safety culture has grown stronger, as reflected in the continuous improvement in the safety culture survey results.



2. IRPC has continued to work toward the goal of having no work-related accidents, known as Goal Zero Accident. The program has reached its Step 5 (999 days). There have been as many as 284 days without any accident. As a result, the annual TRIR has continuously improved year after year.
3. The Safety Excellence Award is an assessment of safety performance in each area of the Company as part of the Safety Excellence Program. It is tool for identifying areas that need improvement and thus prompts a change in risky behavior and promotes a safety culture. The award is given to departments with outstanding safety performance, serving as an incentive for them.
4. The Safety Culture Survey is conducted to gauge IRPC's culture of safety, occupational health, and workplace environment. In 2020, IRPC developed a plan to address areas that fell short of the Company's expectations from last year's survey. The results

showed an upward trend, suggesting that the overall improvement of the Company's safety culture was improving.

5. Within the framework of the SHE 4.0 Policy, IRPC has developed a range of applications to facilitate operations, process audits, data collection, and reports. These applications include e-Contractor, e-Permit, e-Healthbook, IdMS, and BSM. The Company has also continuously improved and developed safety applications.
6. To monitor and prevent the spread of COVID-19, IRPC has introduced various measures, including social distancing, mandatory face masks in plants, and 9 COVID-19 prevention measures for employees working in risky areas. These practices have been communicated to employees. IRPC also monitors strict compliance and BCM emergency drills. Employees have cooperated and strictly complied with these measures.

9 COVID-19 Prevention Measures



1. CCR is a clean zone, and unauthorized persons are **not permitted**. For the process area, authorization is given only as necessary to minimize the number of persons involved.



2. Contractors are not permitted inside the 10th Year Building, the Hall of History, and 4th-10th floors. A contact point has been set up on the 2nd floor.



3. COVID-19 prevention guidelines for contractors, outsourced companies, and other companies in IRPC Industrial Park have been developed and specified in the TOR of employment contracts.



4. External parties must undergo screening. Those coming from risky areas must obtain permission from a senior executive vice president.



5. Temperature checks are conducted at entrances.



6. Mandatory face masks



7. Social distancing



8. Alcohol gel stations



9. Sanitation measures



Employee care measures

- The measures are based with the notification of the Corporate Organization Effectiveness Division regarding the prevention and control measures of a novel coronavirus disease dated February 25, 2020.
 - Superiors may choose not approve a request for a vacation leave for a trip to a risky area at their discretion.
- Employees who have been to a risky area must strictly follow the measures announced by the Ministry of Public Health.
- Employees must notify their superiors upon returning to Rayong.
 - Superiors may assign employees to work from home for 14 days, during which employees must observe their symptoms and report to their superiors every day.
 - Employees fill out a COVID-19 survey to assess their risks.



Measures for external parties

External parties who travel from or reside in 10 border provinces of Myanmar and are entering IRPC's area to contact the Company or to work must obtain permission from a senior executive vice president.

Stringent Measures



Mandatory Face Masks



Compliance Monitoring



Social Distancing

- Passenger Elevators
- Meeting Rooms
- Canteens
- Smoking Areas
- Buses
- etc.

Occupational Health Management

Occupational health management is essential, especially during the COVID-19 pandemic, which has far-reaching impact. IRPC has appointed a dedicated working team and introduced measures based on the regulations and guidelines issued by the Department of Disease Control, the Ministry of Public Health. The management budget has been managed well, and the management results during the pandemic has been satisfactory. Additionally IRPC has provided assistance to society. It has given relief kits to those affected by COVID-19 and alcohol gel dispensers to hospitals as well as educated communities on the prevention and control of COVID-19. In addition, IRPC has continued to implement other occupational health programs. It proactively monitors its people's health through the Health Risk Assessment, an annual medical examination, a risk-based checkup, and an electronic health book (e-Health Book).



IRPC received the first prize for its anti-smoking campaign in the Smoking-free Workplace Awards by the National Alliance for Tobacco Free Thailand.



IRPC gave relief kits to contractors affected by the COVID-19 pandemic.



IRPC provided alcohol gel dispensers to communities.



Environmental Management

IRPC places importance on the management of odors and volatile organic compounds (VOCs) in its sites of operation to prevent long-term problems. To this end, it focuses on improving the source. In 2020, IRPC reduced the odors and VOCs from slop tanks in the tank farm by replacing two existing roofs with dome roofs. In total, three dome roofs have been installed as targeted.

Water Management in IRPC Industrial Park

IRPC maximizes water efficiency through the principles of 3Rs: Reduce, Reuse, and Recycle. Additionally, in

wet seasons, during which a large volume of water drains to the sea, the Company diverts water into its five reservoirs in the industrial park to create raw water reserves and ensure that production can continue smoothly in the event of a drought.

Due to climate change, the Eastern Economic Corridor (EEC), which spans across three provinces, namely Chachoengsao, Chonburi, and Rayong, recorded much below average rainfall in 2019, and as a result, the water budget of the reservoir might be insufficient for consumption during the dry spell in 2020. In response, the Royal Irrigation Department and the Water War Room introduced measures in preparation for the



impending drought, including a directive for all organizations in the area to cut water use by 10% so as to stretch the existing reserve until the end of the dry spell. IRPC cooperated by reducing the use of irrigation water supply as instructed. In tandem, it implemented measures to reduce water usage, drew water from the raw water reserves to compensate for

the reduced quota, and procured supplementary water from external sources. As a result, IRPC had adequate water for its manufacturing and was able to successfully overcome the drought crisis in 2019-2020 as well as offer assistance to affected communities around IRPC Industrial Park by providing over 200,000 cubic meters of water.



IRPC pumped raw water from its reservoir to distribute to government agencies and local administrative organizations in Ban Laeng Sub-district and Choeng Noen Sub-district Municipality in Rayong Province.

Eco Industrial Town (EIT) Assessment

IRPC worked with Choeng Noen, Ban Laeng, and Taphong districts to undergo an EIT assessment. As a result of the long-standing commitment to sustainability practices in the IRPC Industrial Park of the Company and relevant local organizations, the three areas

were certified a Level 4 EIT (Symbiosis) for the second consecutive year. Representatives of these areas received a plaque and certificate from the Deputy Secretary-General of the Department of Industrial Works at a seminar to disseminate the results of the review and evaluation of eco-industrial towns and develop the capacity of eco-industrial networks in 18 areas of 15 provinces.



IRPC attended a seminar to announce the results of the eco-industrial town development in collaboration with the Department of Industrial Works, the Ministry of Industry.

Prevention of Environmental Impacts from Maintenance

IRPC has applied the green turnaround concept to its maintenance activities to prevent environmental impacts, including air pollution, wastewater, and waste. The concept includes 7Rs (Rethink, Reduce, Reuse, Recycle, Return, Refuse, Repair) and is in line with the company's QSSHE policy. IRPC has successfully accomplished its goal of achieving zero complaint on maintenance by external party and recovering 30 tons of hot insulation, thus saving more than 380,000 baht in transportation costs.

Operational measures



Reporting Air Quality Assessment Results and News via Mobile Application

To provide a prompt and convenient access to news and air quality measurements for communities and organizations, IRPC has developed the application IRPC Air, which reports the real time air quality index measured by six air monitoring stations in communities around IRPC Industrial Park. It is free to download and available on both iOS and Android systems. The

application also allows users to submit suggestions and environmental complaints to IRPC Industrial Park as well as share the location or images related to their complaints. This is so that responsible officers can promptly report back to them with additional information and inform them of the cause and actions taken by IRPC to solve the issue.

Application Reports • Monitoring Air Quality

Users can also submit suggestions and environmental complaints to IRPC Industrial Park







IRPC has revised our production plan to reduce the impact of substantially shrunk product demand due to the COVID-19 pandemic. Nevertheless, the utilization rate remains high.



Management Discussion and Analysis (MD&A)

Executive Summary

	Unit	2020	2019	Changed
Crude Intake	Million bbl	70.35	72.00	(3%)
Sales ⁽¹⁾	Million Baht	174,463	239,315	(27%)
Net Sales ⁽²⁾	Million Baht	152,319	216,577	(30%)
Market GIM	Million Baht	19,414	19,555	(1%)
	USD/ bbl ⁽³⁾	8.78	8.70	1%
Accounting GIM	Million Baht	17,825	20,169	(12%)
	USD/ bbl	8.06	8.97	(10%)
EBITDA	Million Baht	4,692	5,940	(21%)
Net Profit	Million Baht	(6,152)	(1,174)	n.a.

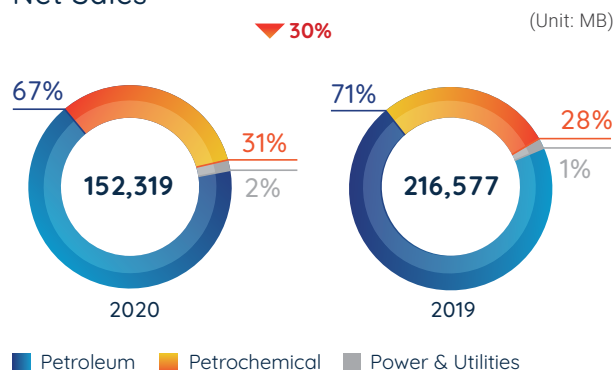
Notes:

- (1) Sales includes (1) Petroleum Sales (2) Petrochemical Sales (3) Power and Utilities Sales (4) Sales of tank farm and port service, etc
 (2) Net Sales includes (1) Petroleum Sales (excluding excise tax) (2) Petrochemical Sales (3) Power and Utilities Sales
 (3) Market GIM per bbl: [(Market GIM/ Crude Intake)/ exchange rate]

The operating results in 2020 compared to those in 2019: In 2020, the Company reported net sales of 152,319 million baht, decreasing by 30%. This attributed to a 24% decrease in average selling price following crude oil price together with a 6% decrease in sales volume. The average crude intake was 192,000 barrels per day, down by 3%. This was resulted from the supply chain management to build resilience at the times of the coronavirus (COVID-19) pandemic. However, the utilization rate remained at the high level.

The Market Gross Integrated Margin (Market GIM) was 19,414 million baht (8.78 USD per barrel), decreasing by 1% from last year as a sharp drop in petroleum products demand and spread according to the COVID-19 pandemic. Nevertheless, the petrochemical products spread that had dropped amid Trade war in 2019. It had recovered this year as a result of higher demand for medical, food packaging and home appliances products due to the change of consumer behavior.

Net Sales



The crude oil price in 2020 had collapsed. The Dubai price had continuously declined since the beginning of the year amid the COVID-19 pandemic as well as the crude oil price war between Saudi Arabia and Russia. The Dubai price had moved down to the lowest point at 13.55 USD per barrel in April. Then, it began improving during the second half of the year after the crude oil producers achieved production cut agreement in accordance with the crude oil demand. Furthermore, the development of the COVID-19 vaccine had progress in

many countries. Hence, the Company had the net stock loss of 1,589 million baht or 0.72 USD per barrel, including the stock loss of 3,485 million baht offset with realized gain on oil hedging of 1,734 million baht and the reversal of Lower of cost or market (LCM) of 162 million baht. While there was net stock gain of 614 million baht in 2019. The Accounting Gross Integrated Margin (Accounting GIM) was 17,825 million baht or 8.06 USD per barrel, comparing with the 2019 Accounting GIM of 20,169 million baht or 8.97 USD per barrel, decreased by 2,344 million baht or 12%. However, other incomes were 2,176 million baht, rising by 8%. The operating expenses were 13,934 million baht, decreasing by 6%, mostly from the employee expense. As a result, the earning before interest, tax, depreciation and amortization (EBITDA) was amounting to 4,692 million baht, dropped by 21%.

There were depreciation expenses amounting to 8,952 million baht, increasing by 5%, mainly owing to the completion of the expansion and efficiency improvement projects such as the Catalyst Cooler project and Floating Solar project. There was loss on financial derivatives amounting to 419 million baht against the gain on financial derivatives amounting to 969 million baht, YoY. On the contrary, the net financial cost of 1,847 million baht decreased by 3% owing to lower interest rate. There was loss on foreign exchange from US Dollar - borrowings of 2 million baht while there was gain on foreign exchange of 458 million baht in 2019. Besides, the Company recorded 2020 unrealized loss on oil hedging amounting to 961 million baht in accordance with Thai Financial Reporting Standards No.9 Financial Instruments which effective on 1 January 2020. The Company recorded loss on impairment and disposal of fixed assets of 535 million baht, mainly attributed to an impairment from the postponement of Maximum Aromatics project (Mars), when compared with 2019 gain on impairment and disposal of fixed assets of 770 million baht, owing to the reversal impairment of land and investments as well as gain from the disposal of land at Ban Khai District, Rayong Province. There was gain on investments of 339 million baht, down by 8%. The Company had the corporate income tax benefit of 1,554 million baht, increasing by 775 million baht from a decline in operating results. All previously mentioned resulting in the net loss of 6,152 million baht in 2020 versus the net loss of 1,174 million baht in 2019.

2020 Key incidents

• 2020 Financial Statements

had complied with Thai Financial Reporting Standards that announced in the Royal Gazette and been effective on January 1, 2020 including

- 1) Group of Financial Instruments Standards
 - TAS 32 Financial Instruments: Presentation
 - TFRS 7 Financial Instruments: Disclosures
 - TFRS 9 Financial Instruments
 - TFRIC 16 Hedges of a Net Investment in a Foreign Operation
 - TFRIC 19 Extinguishing Financial Liabilities with Equity Instruments

2) Thai Financial Reporting Standards No. 16 "Leases"

• The issuance of debentures

On September 11, 2020, the Company has completed fund raising from the issuance of unsubordinated and unsecured debentures in 5 tranches in the total amount of 12,000 million baht including

Tranche 1 and 2: The debentures are offered to individual Investors in the amount of 6,000 million baht with tenor of 3 - 5 years. The debentures have a fixed coupon interest rate of 3.00% - 3.50% per annum.

Tranche 3 - 5: The debentures are offered to the Institutional Investors and/ or High Net Worth Investors in the amount of 6,000 million baht with tenor of 2 - 15 years. The debentures have a fixed coupon interest rate of 2.76% - 4.40% per annum.

• The investment in Mytex Polymer (Thailand) Co., Ltd.

On March 3, 2020, the Company entered into the Share Purchase Agreement with Japan Polypropylene Corporation, incorporated in Japan to acquire 600,000 ordinary shares (50% of the registered share capital) of Mytex Polymer (Thailand) Co., Ltd., incorporated in Thailand, which operates production and distribution on the special grade of Polypropylene amounting to 350 million baht. The Company paid for share acquisition as mentioned above on July 30, 2020.

Operating Performance

1. Operating Performance by Business Units

1.1. Petroleum business unit

1.1.1 Petroleum Market Overview

Crude oil situation in 2020: The global oil consumption was 93.3 million barrels per day, dropped by 8.7 million barrels per day from 102 million barrels per day in 2019. The Dubai price had moved between 13.55 USD per barrel and 69.60 USD per barrel, an average of 42.21 USD per barrel, fell by 21.32 USD per barrel from an average of 63.53 USD per barrel in 2019. This was mainly due to a sharp drop in petroleum products demand that used for transportation following the country's Lockdown measure

to curb the COVID-19 outbreak. It started in China since December 2019 and had surged across the globe. Also, the crude oil price war among the major crude oil producers that the production cut agreement in order to mitigate a massive fall in demand could not be reached caused the crude oil price to drop significantly to a record low of 13.55 USD per barrel in April. Then it began to recover after OPEC and its allies including the U.S., had cut the output more than 6 million barrels per day. In addition, a recovery in oil demand after the Lockdown easing in several countries, the severe U.S. hurricanes over the past 10 years, and the development and rollout of vaccines for COVID-19 at the end of the year had supported the price of crude oil.

Dubai Price

(Unit: USD/ bbl)



1.1.2 Crude Intake and Capacity

Petroleum	2020	2019	Changed
Crude Intake			
Million barrels	70.35	72.00	(3%)
KBD	192	197	(3%)
Utilization Rate			
Refinery	89%	92%	(3%)
RDCC	90%	102%	(12%)
Lube Base Oil	85%	82%	3%



In 2020, crude intake was 70 million barrels or 192 KBD, U-Rate at 89%, decreasing by 3 % from 2019 as the supply chain management amid the COVID-19 outbreak.



Crude intake in 2020 was 70 million barrels or 192,000 barrels per day (192 KBD). The utilization rate was 89%, slightly decreased by 3% from 2019 utilization rate. This was owing to the supply chain management to build resilience at the times of the COVID-19 outbreak.

The utilization rate of RDCC plant was 90% in 2020, down by 12% when compared to 2019 of 102% utilization rate, due to an increase of Hyvahl unit utilization rate in 2019 to produce the very low sulfur fuel oil (VLSFO)'s raw material towards the International Marine Organization (IMO) new standard implementation.

The utilization rate of Lube Base Oil plant was 85% in 2020, up by 3% when compared with 2019 following the tight supply situation as the refineries have reduced their production leading to lower Lube base oil and Asphalt products.

1.1.3 Petroleum Sales

Products	Sales Volume (Million Barrel)		Sales Value (Million Baht)	
	2020	2019	2020	2019
Refinery	53.84	57.99	87,025	136,670
Lube Base Oil	7.25	6.88	14,404	16,781
Total	61.09	64.87	101,429	153,451



In 2020, net sales of petroleum businesses decreased by 34% from last year due to a 28% decrease in average products prices and a 6% decrease in sales volume.



For 2020, net sales of petroleum businesses were 101,429 million baht, fell by 52,022 million baht or 34% from 2019. This was resulted from a 28% decline in average products prices following the decrease in crude oil price as well as a 6% decrease in sales volume from 64.87 million barrels to 61.09 million barrels as a result of the COVID-19 outbreak. The decreased sales volume was mainly from Diesel, Naphtha and Fuel Oil though Lube Base Oil group sales volume increased.

1.1.4 Petroleum Sales Breakdown

Products	2020		2019	
	Local	Export	Local	Export
Refinery	62%	38%	58%	42%
Lube Base Oil	41%	59%	41%	59%
Total	59%	41%	56%	44%

For 2020, the percentage of domestic and export of petroleum product was 59% and 41% accordingly. The percentage of domestic rose by 3% compared with last year as the revision of product portfolio strategy to strengthen the domestic market (Domestic First). The rise in domestic sale volume was mainly from Diesel and Fuel Oil. The export products in 2020 mostly shipped to Singapore, Cambodia, and Malaysia, respectively.

1.1.5 Petroleum Products Spread

Average Price	2020	2019	Changed
Dubai Crude Oil (USD/ bbl)	42.21	63.53	(34%)
Petroleum (USD/ bbl)			
Naphtha - Dubai	(1.8)	(6.6)	73%
ULG95 - Dubai	4.4	9.0	(51%)
Gas Oil 0.05%S - Dubai	6.1	13.7	(55%)
FO 180 3.5%S - Dubai	(3.0)	(4.9)	39%
Lube Base Oil (USD/ MT)			
500SN - FO 180 3.5%S	389	321	21%
150BS - FO 180 3.5%S	514	490	5%
Asphalt - FO 180 3.5%S	38	13	192%

The spread between Petroleum products and raw material

The spread between Petroleum products and Dubai

- **Naphtha Spread - Higher:** Naphtha - Dubai spread in 2020 was -1.8 USD per barrel, moved up by 73% when compared to 2019 of -6.6 USD per barrel due to a decrease in Naphtha portion according to low-level of the U.S. light crude oil output and lower refineries' utilization rate amid the COVID-19 pandemic. Meanwhile, there was rising Naphtha demand for petrochemical production than high-price LPG. Naphtha - Dubai spread in 4Q20 was -1.3 USD per barrel, down by 1.5 USD per barrel from 0.2 USD per barrel of 3Q20 as Planned and Unplanned Shutdown of petrochemical plants in Asia causing lower demand for Naphtha.
- **ULG95 Spread - Lower:** ULG 95-Dubai spread in 2020 was 4.4 USD per barrel, falling 51% from 2019 of 9.0 USD per barrel. Global gasoline demand dropped sharply as a result of the COVID-19 pandemic, the spread was falling to the lowest of 0.1 USD per

barrel in April 2020, prompting the refineries to cut their production in order to support the price. As a result, the gasoline spread had improved to 3-5 USD per barrel in the second half of the year. ULG95 Dubai spread in 4Q20 was 4.1 USD per barrel, decreased by 7% from 3Q20 of 4.4 USD per barrel. This was owing to the second wave of the COVID-19 outbreak plus the off-peak traveling.

- **Gas Oil Spread-Lower:** Gas Oil 0.05% S-Dubai was 6.1 USD per barrel in 2020, down by 55% when compared with 2019 of 13.7 USD per barrel. The COVID-19 pandemic caused the industrial sector to reduce their production. This resulted in a decline in the demand for diesel. Meanwhile, the supply had surged after the refineries cut Jet fuel production by bringing more Diesel production. Jet demand was the most affected by the COVID-19 pandemic due to reduction in domestic and international flights. In 4Q20, Gas Oil 0.05% S - Dubai spread was 3.7 USD

per barrel, down by 12% when compared to 3Q20 of 4.2 USD per barrel. The spread had continued to decline from 3Q20 when the COVID-19 pandemic continued to intensify. Moreover, the resumption of production in China and India kept export at high level.

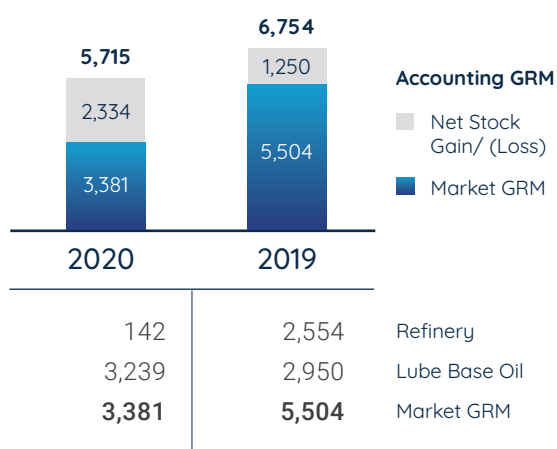
- **Fuel Oil Spread - Higher:** Fuel Oil (FO 180 3.5%S) - Dubai spread in 2020 was -3.0 USD per barrel, rose by 39% when compared with 2019 of -4.9 USD per barrel. It was previously expected that the 2020 Fuel Oil spread would sharply dropped as a change in IMO standard shipping fuel from HSFO to VLSFO. But the Fuel Oil spread was higher than that of 2019 due to the refineries run cut causing the lower HSFO production. Meanwhile, Demand remained firm from the upgrading Units, scrubber-equipped ships and power plants that supporting Fuel Oil price. In 4Q20, Fuel Oil-Dubai spread was -0.6 USD per barrel, up by 76% from 3Q20 of -2.5 USD per barrel due to the refineries run cut as mentioned above. Moreover, higher demand from power plants due to high LNG price during winter resulted in using fuel oil instead.

The spread between Lube Base Oil products and FO 180 3.5%S

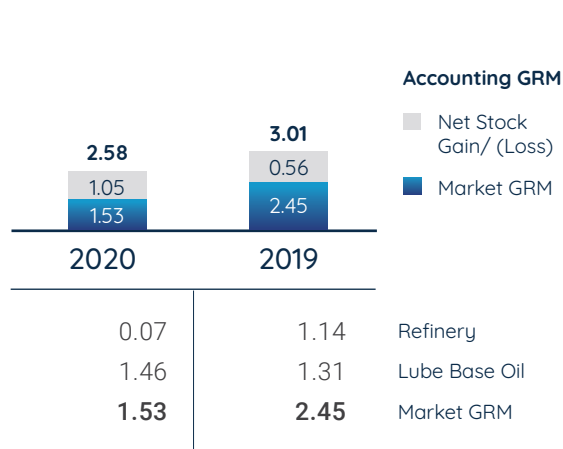
- **500SN Spread - Higher:** Lube base 500SN - fuel oil spread in 2020 was 389 USD per ton, increasing 21% from 321 USD per ton in 2019 due to tight supply from production cuts of Refineries and Lube Base Oil producers. Lube base 500SN-fuel oil spread in 4Q20 was 473 USD per ton, increased by 39% from 3Q20 of 340 USD per ton as tight supply from refineries cut their production in response to COVID-19 outbreak.
- **Asphalt Spread - Higher:** Asphalt-fuel oil spread in 2020 was 38 USD per ton, increased by 192% from 2019 of 13 USD per ton, This was driven by the continuous demand from Vietnam, Malaysia, and Thailand along with the tight supply as refineries cut production. Asphalt-fuel oil spread in 4Q20 was 20 USD per ton, down by 69% when compared to 3Q20 of 64 USD per ton, because of softer demand in China and Vietnam due to heavy rainfall during monsoon season.

1.1.6 Gross Refining Margin

(Unit: MB)



(Unit: USD/ bbl)





In 2020, Market GRM was 3,381 million baht or 1.53 USD per barrel, decreased by 2,123 million baht or 0.92 USD per barrel from last year due to lower in almost all petroleum products spread.



For 2020, The Gross Refining Margin (Market GRM) was 3,381 million baht or 1.53 USD per barrel, declining by 2,123 million baht or 0.92 USD per barrel from last year. This was resulted from a decrease in almost all petroleum products spread especially Diesel and Gasoline affected by the COVID-19 pandemic against the lower Crude Premium. The net stock gain was 2,334 million baht or 1.05 USD per barrel including stock gain of 600 million baht and realized gain on oil hedging of 1,734 million baht. Thus, the Accounting Gross Refining Margin (Accounting GRM) was 5,715 million baht or 2.58 USD per barrel, declining by 1,039 million baht or 0.43 USD per barrel from last year.

1.2 Petrochemical business units

1.2.1 Petrochemical Market Overview

Petrochemical market situation in 2020: Demand for petrochemical product declined towards the global economic contraction. The World Bank estimated the global economy to shrink by 4.3% in 2020. The COVID-19 pandemic had a severe impact on the global economy. China was the only country to continue to expand its economy while the economies of Europe and the U.S. contracted 7.4% and 3.6%, respectively. On the other hand, the COVID-19 pandemic had driven up demand for medical, packaging for food delivery as well as online business leading to a slight decrease in the Olefins price. Meanwhile, the raw material, Naphtha, price fell sharply following crude oil price as demand for oil shrank from the Lockdown measure to curb the COVID-19 pandemic. This turned out to be good for petrochemical business to reap the benefit of higher products spread. Styrenics also took advantages from Work from Home which causing an increase in demand for home appliances and electrical appliances. In addition, some Styrenics products such as ABS, its demand had boosted from the China's "One Helmet, One Belt" policy. However, a falling demand for Aromatics as the declining demand of Polyester as well as massive volume of new capacities in 2020 put significant pressure on Aromatics spread.

1.2.2 Petrochemical Capacity

	2020	2019	Changed
Utilization Rate			
Olefins Group	93%	95%	(2%)
Aromatics and Styrenics Group	98%	93%	5%

In 2020, the utilization rate of Olefins was 93%, being similar with 2019 of 95% utilization rate. The utilization rate of Aromatics & Styrenics was 98%, increased by 5% when compared to 2019 of 93% utilization rate. It was because of the planned maintenance shutdown for catalyst replacement in EBSM plant and the installation of new control unit in ABS plant in order to improve plant efficiency in 2019. In addition, the Styrenics market has rebounded sharply compared to the previous year.

1.2.3 Petrochemical Sales

Products	Sales Volume (KMT)		Sales Value (Million Baht)	
	2020	2019	2020	2019
Olefins Group	1,029	1,117	29,578	37,671
Aromatics and Styrenics Group	703	702	17,879	21,985
Total	1,732	1,819	47,457	59,656



In 2020, net sales of petrochemical businesses dropped by 20% from 2019, owing to 15% decrease in average selling price and 5% decrease in sales volume



In 2020, net sales of petrochemical businesses were 47,457 million baht, dropping by 12,199 million baht or 20% from last year. This was caused by a 15% decline in average selling price following lower raw material price and a 5% decrease in sales volume by 87,000 tons, impacted by the COVID-19 outbreak. The drop in sale volume was mainly from PP in Olefins Group and Mixed Xylene and Toluene in Aromatics Group.

1.2.4 Petrochemical Sales Breakdown

Products	2020		2019	
	Local	Export	Local	Export
Olefins Group	64%	36%	59%	41%
Aromatics and Styrenics Group	40%	60%	45%	55%
Total	55%	45%	54%	46%

For 2020, the proportion of petrochemical sales were 55% domestic and 45% export. The domestic sales increased by 1% from last year, mostly from PP in Olefins Group and ABS in Styrenics Group. The petrochemical exported products in 2020 mostly shipped to Hong Kong, Singapore, and Vietnam, respectively.

1.2.5 The spread between key petrochemical products and raw material

(Unit: USD/ MT)

Average price	2020	2019	Changed
Naphtha	380	523	(27%)
Olefins			
Ethylene - Naphtha	333	301	11%
HDPE - Ethylene	294	298	(1%)
HDPE - Naphtha	627	599	5%
Propylene - Naphtha	395	316	25%
PP - Propylene	207	256	(19%)
PP - Naphtha	602	572	5%
Aromatics			
BZ - Naphtha	105	118	(11%)
TOL - Naphtha	58	121	(52%)
MX - Naphtha	91	169	(46%)
Styrenics			
SM - Naphtha	383	484	(21%)
ABS - Naphtha	1,142	934	22%
PS (GPPS) - Naphtha	731	724	1%

The spread between Petrochemical products and raw material**The spread between Polyolefins (HDPE/PP) and Naphtha**

- **HDPE Spread - Higher:** HDPE-Naphtha spread in 2020 was 627 USD per ton, increased by 5% from 2019 of 599 USD per ton due to the increased demand for packaging as a higher online shopping activities according to the COVID-19 pandemic including higher demand of Single-Use Plastic during the COVID-19 pandemic. HDPE-Naphtha spread in 4Q20 was 687 USD per ton, up by 8% when compared to previous quarter at 638 USD per ton. This was mainly attributed to demand for packaging products remained high which driven by Work from Home behavior where the infection has intensified worldwide.

- **PP Spread - Higher:** PP-Naphtha spread in 2020 was 602 USD per ton, increased by 5% from 2019 of 572 USD per ton, derived from the increase in the medical sector and food packaging business. However, a significant increase of new capacity in the region put pressure on PP price. PP - Naphtha spread in 4Q20 was 739 USD per ton, increased by 33% when compared with 3Q20 of 557 USD per ton from tight supply situation. Also, the automotive demand had improved.

The spread between Aromatics group and Naphtha

- **TOL and MX Spread-Lower:** In 2020, Toluene-Naphtha spread and Mixed Xylene-Naphtha spread were 58 USD per ton and 91 USD per ton respectively, down by 52% and 46% when compared with 2019. This caused by oversupply from new integrated Paraxylene capacity in China. In addition, the demand for garment industry had declined following

the economic recession. This caused lower demand for Toluene and Mixed Xylene, the Paraxylene raw material. In 4Q20, Toluene - Naphtha spread and Mixed Xylene - Naphtha spread were 26 USD per ton and 49 USD per ton respectively, rebounded by 271% and 14% respectively when compared with 3Q20, as the Southeast Asian producers continued to keep low operating rate. Meanwhile, China increased production and started export to Asia.

The spread between Polystyrenics group and Naphtha

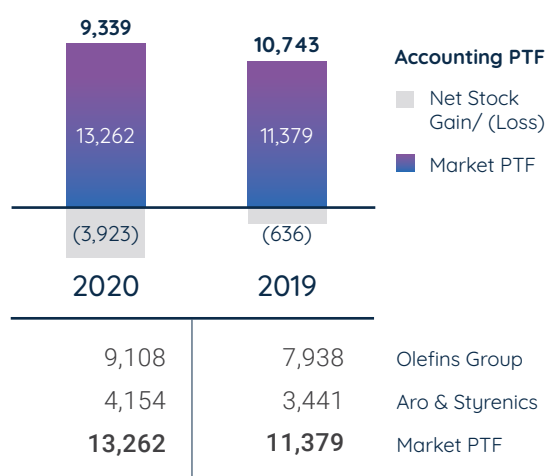
- **ABS Spread - Higher:** ABS - Naphtha spread in 2020 was 1,142 USD per ton, increased by 22% when compared to 934 USD per ton in 2019. This was mainly owing to the increasing demand including home appliances, electrical appliances and healthcare products thanks to the Work from Home behavior. The recovery of automotive sector as well as an increase demand for safety in accordance

with "One Helmet One Belt" China's Policy during 2H20 also help the ABS market to bounce back. While there was a slight increase of new capacity. ABS-Naphtha spread in 4Q20 was 1,627 USD per ton, rose by 44% when compared to 1,131 USD per ton in 3Q20 owing to the tight supply. In addition, there was an accelerated production to support high demand from festival at the end of the year.

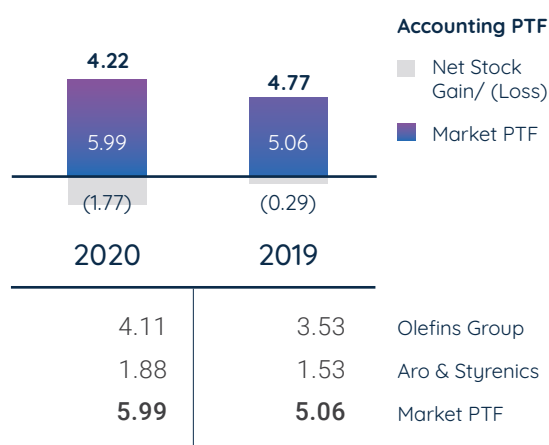
- **PS Spread - Unchanged:** PS-Naphtha spread in 2020 was 731 USD per ton, in line with the 2019 PS spread of 724 USD per ton. This was due to an increase in demand for food packaging, while demand in other groups dropped as the impact of the COVID-19 pandemic. PS-Naphtha in 4Q20 was 975 USD per ton, moved up by 56 % from 3Q20 of 625 USD per ton, from the tight supply situation as a consequent of fire incident at the LG plant in South Korea.

1.2.6 Product to Feed Margin (Product to Feed: PTF)

(Unit: MB)



(Unit: USD/ bbl)





For 2020, Market PTF of 13,262 million baht increased by 1,883 million baht from last year owing to the improving almost all Petrochemical products spread.



For 2020, The Market Product to Feed (Market PTF) was 13,262 million baht or 5.99 USD per barrel, increasing by 1,883 million baht or 0.93 USD per barrel from last year. The main reason was the increase in almost all petrochemical products spread when compared with 2019 of the huge decrease in almost all petrochemical products spread as a result of trade war between the U.S. and China. Meanwhile, the Company reported the net stock loss of 3,923 million baht attributed to the stock loss of 4,085 million baht but there was gain from the reversal of LCM amounting to 162 million baht. Hence, the Accounting Product to Feed (Accounting PTF) was 9,339 million baht or 4.22 USD per barrel. It was down by 1,404 million baht or 0.55 USD per barrel when compared to last year.

1.3 Power Plant and Utility business units

1.3.1 Power Plant Capacity and Sales

	2020	2019	Changed
Utilization Rate			
Electricity	70%	71%	(1%)
Steam	64%	60%	4%
Sales (Million Baht)			
Electricity	2,027	2,071	(2%)
Steam	1,175	1,153	2%
Others	231	246	(6%)
Total	3,433	3,470	(1%)

Utilization rate of Power and Steam: the utilization rate of Electricity in 2020 was 70%, being similar to 2019 of 71% utilization rate. The utilization rate of steam in 2020 was 64%, increased by 4% from 2019 due to the planned shutdown of RDCC plant for catalyst cooler equipment installation in 2019.

The net sales of power and utility businesses in 2020, the net sales of power and utility businesses were 3,433 million baht, declining by 37 million baht or 1% when compared to 2019 of 3,470 million baht. This was mainly owing to a 4% decrease in sales volume while a 3% increase in selling price.

2. Total Operating Performance

Total Operating Performance of IRPC and its subsidiaries for year 2020 are as follow;

	Unit: Million Baht		Unit: USD per barrel	
	2020	2019	2020	2019
Average FX (THB/ USD)	31.46	31.22		
Total Crude Intake (Mbbl)	70.35	72.00		
Average Crude (USD/ bbl) ⁽¹⁾	43.80	66.99		
Sales ⁽²⁾	174,463	239,315	78.83	106.46
Net Sales ⁽³⁾	152,319	216,577	68.82	96.35
Cost of Feedstock (Market Price)	(132,905)	(197,022)	(60.04)	(87.65)
Market GIM	19,414	19,555	8.78	8.70
Stock Gain (Loss)	(3,485)	(740)	(1.57)	(0.33)
Lower of Cost or Market	162	678	0.07	0.30
Realized Gain (Loss) on Oil Hedging	1,734	676	0.78	0.30
Net Stock Gain (Loss)	(1,589)	614	(0.72)	0.27
Accounting GIM	17,825	20,169	8.06	8.97
Other Incomes ⁽⁴⁾	2,176	2,021	0.98	0.90
Selling Expenses	(1,375)	(1,464)	(0.62)	(0.65)
Accounting GIM and Other Incomes	18,626	20,726	8.42	9.22
OPEX	(13,934)	(14,786)	(6.29)	(6.58)
EBITDA	4,692	5,940	2.13	2.64
Depreciation	(8,952)	(8,542)	(4.04)	(3.80)
EBIT	(4,260)	(2,602)	(1.91)	(1.16)
Net Financial Cost ⁽⁵⁾	(1,847)	(1,903)	(0.83)	(0.85)
Gain (Loss) on Financial Derivatives	(419)	969	(0.19)	0.43
Gain (Loss) on Foreign Exchange from borrowing	(2)	458	(0.00)	0.20
Unrealized Gain (Loss) on Oil Hedging	(961)	-	(0.43)	-
Gain (Loss) on impairment and disposal of fixed assets	(535)	770	(0.24)	0.34
Gain (Loss) on Investment	339	368	0.15	0.16
Other Expenses	1	15	0.00	0.01
Net Profit (Loss) before Income Tax	(7,684)	(1,925)	(3.45)	(0.87)
Income Tax	1,554	779	0.70	0.35
Gain (Loss) on non-controlling interests	(22)	(28)	(0.01)	(0.01)
Net Profit (Loss)	(6,152)	(1,174)	(2.76)	(0.53)
Earning per share (EPS) (baht/ share)	(0.30)	(0.06)		

Notes:

(1) Average market prices of crude used in the production process

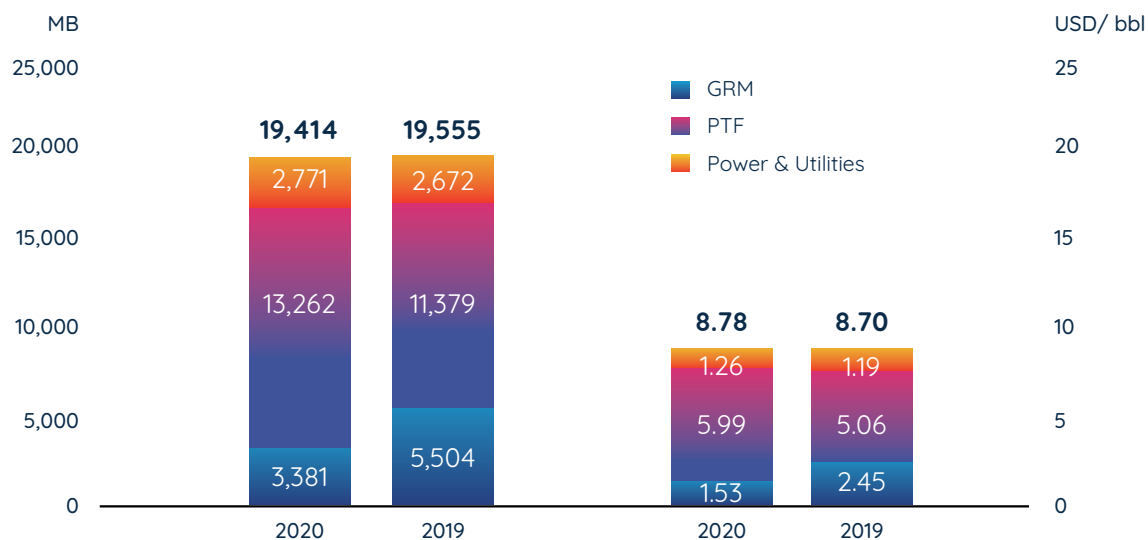
(2) Sales includes (1) Petroleum Sales (2) Petrochemical Sales (3) Power and Utilities Sales (4) Sales of tank farm and port service, etc.

(3) Net Sales includes (1) Petroleum Sales (excluding excise tax) (2) Petrochemical Sales (3) Power and Utilities Sales

(4) Including port, tank farm and service etc.

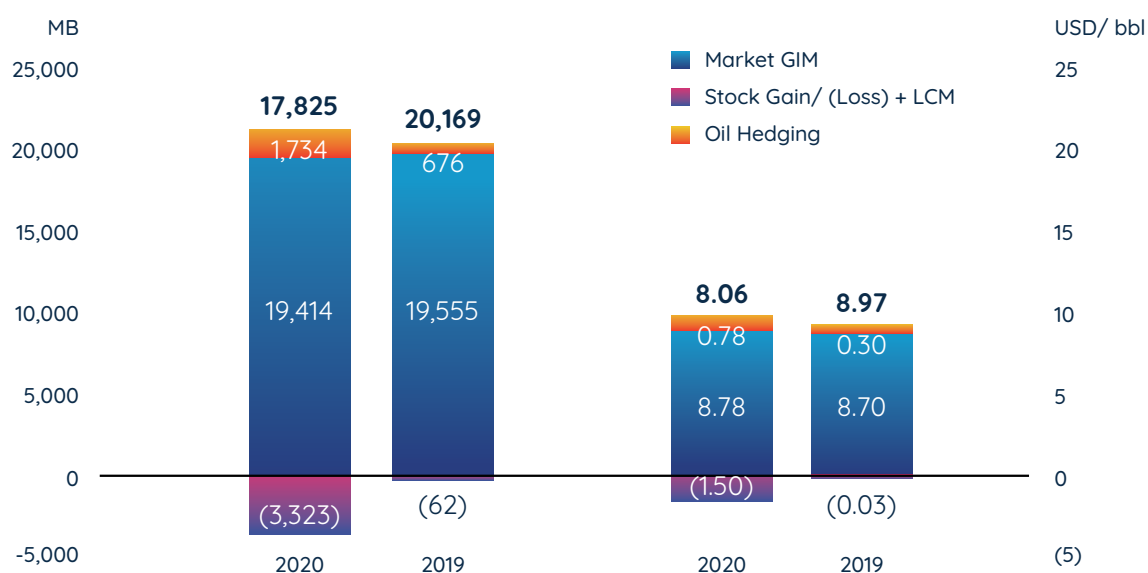
(5) Net Financial Cost excludes gain (loss) from financial derivatives

2.1 Market Gross Integrated Margin (Market GIM)



For 2020, Market Gross Integrated Margin (Market GIM) was 19,414 million baht or 8.78 USD per barrel, slightly declined by 141 million baht from 2019. This was because of the decrease in almost all petroleum products spread as a result of the COVID-19 outbreak. While the Crude Premium dropped by 1.87 USD per barrel.

2.2 Accounting Gross Integrated Margin (Accounting GIM)



For 2020, Accounting Gross Integrated Margin (Accounting GIM) was 17,825 million baht or 8.06 USD per barrel. It declined by 2,344 million baht or 0.91 USD per barrel from last year. This was caused by a decrease in Market GIM of 141 million baht combined with 2020 net stock loss of 1,589 million baht or 0.72 USD per barrel comprising of the stock loss amounting to 3,485 million baht or 1.57 USD per barrel against gain from the reversal of LCM amounting to 162 million baht or 0.07 USD per barrel as well as gain on realized oil hedging amounting to 1,734 million baht or 0.78 USD per barrel. Meanwhile, there was net stock gain of 614 million baht or 0.27 USD per barrel in 2019.

(Unit: MB)

	2020	2019	Changed
Market GIM	19,414	19,555	(1%)
Stock Gain/ (Loss)	(3,485)	(740)	n.a.
Lower of Cost or Market (LCM)	162	678	(76%)
Oil Hedging Gain/ (Loss)	1,734	676	157%
Net Stock Gain/ (Loss)	(1,589)	614	n.a.
Accounting GIM	17,825	20,169	(12%)

2.3 Other Incomes

Other incomes consist of port and tank farm services and other services. For 2020, the Company had other incomes amounting to 2,176 million baht, increasing by 155 million baht from last year owing to the income from iPolymer Co., Ltd., which be incorporated to conduct the e-commerce trading focusing on plastic products.

2.4 Operating Expenses

For 2020, there were the operating expenses of 13,934 million baht, decreased by 852 million baht or 6% from 2019, mainly because of the recording of employee benefit expense in accordance with the new Labor Protection Act last year and other expenses reduced as a result of cost control measures.

Regarding the research and development expenses in order to enhance the Company's competitiveness, there were total of 232 million baht in 2020. Such expenses included expenses for internal and external research and development as well as the staff costs in relation with the research department amounting to 202 million baht together with the research equipment & tools amounting to 30 million baht.

2.5 Depreciation and Amortization Expenses

For 2020, the depreciation of 8,952 million baht, increased by 410 million baht or 5% from last year. The main reason was the completion of the expansion and efficiency improvement projects such as the Catalyst Cooler project and Floating Solar project that started commercial operation in June 2020.

2.6 Net Financial Cost

For 2020, net financial costs of 1,847 million baht decreased by 56 million baht or 3% from last year. It was owing to a decrease of borrowing interest rate.

2.7 Gain (Loss) on Financial Derivatives

For 2020, there were loss on financial derivatives amounting to 419 million baht, mainly from loss on Interest Rate Swap (IRS) of 225 million baht and loss on Cross Currency Swap (CCS) of 205 million baht. When compared with 2019 there were gain on financial derivatives of 969 million baht, mainly owing to realized gain on CCS of 950 million baht.

2.8 Gain (Loss) on Foreign Exchange from borrowing

For 2020, the Company recorded unrealized loss on foreign exchange from borrowing of 2 million baht, while there was unrealized gain on foreign exchange of 458 million baht in 2019. This was because Thai Baht slightly stronger, from 30.33 baht/ USD at the end of 2019 to 30.21 baht/ USD at the end of 2020. The Company has outstanding USD debt of 140 USD million at the end of 2020.

2.9 Unrealized Gain (Loss) on Oil Hedging

For 2020, the Company had unrealized loss on oil hedging amounting to 961 million baht following the price risk management. According to Thai Financial Reporting Standard No. 9 "Financial Instrument" (TFRS 9), effective on January 1, 2020, it makes stipulations relating to hedging instruments have to measures the unexpired contracts value at fair value.

2.10 Gain (Loss) on Impairment and disposal of fixed assets

For 2020, there was loss on impairment and disposal of fixed assets of 535 million baht. The Company recorded an impairment from the postponement of Mars project amounting to 456 million baht and the write-off of intangible assets-dredging. When compared with 2019 gain on impairment and disposal of fixed assets of 770 million baht, this was owing to the reversal impairment of land and investments in companies related to the previous management as well as gain from the disposal of land at Ban Khai District, Rayong Province to WHA Industrial Estate Rayong Co., Ltd.

2.11 Gain (Loss) on Investments

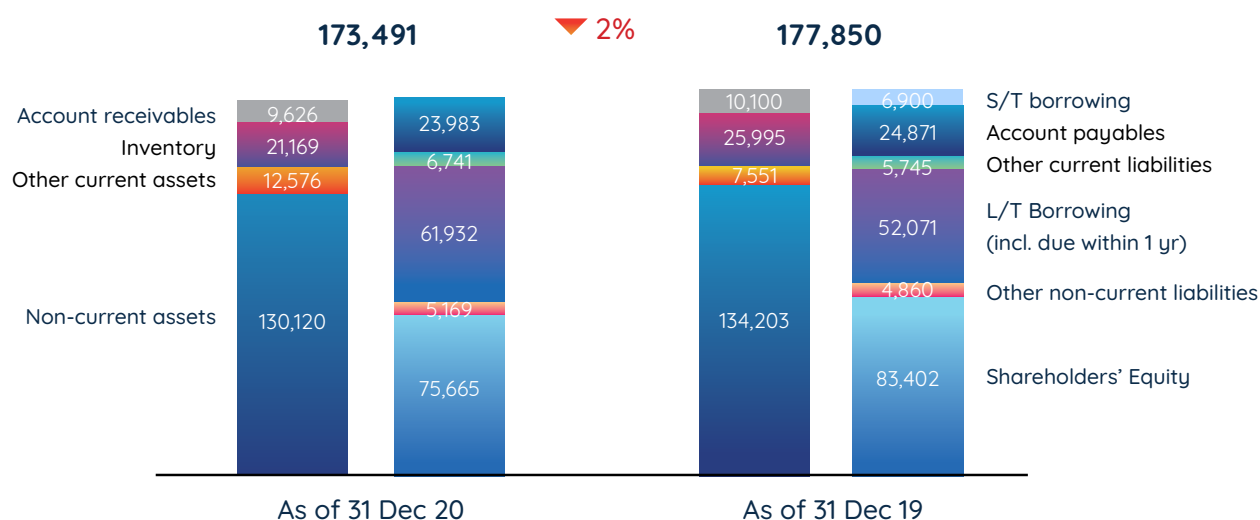
For 2020, The Company recorded gain from investments of 339 million baht, declined by 29 million baht from 2019, mainly from lower equity values in associates and joint ventures.

2.12 Corporate Income Tax

For 2020, there was the corporate income tax benefit amounting to 1,554 million baht, increased by 775 million baht, when compared with 2019 the corporate income tax benefit amounting to 779 million baht. This mainly caused by the decline in operating results.

Financial Positions as of 31 December 2020

(Unit: Million Baht)



Assets

As of December 31, 2020, the Company had total assets of 173,491 million baht, increased by 4,359 million baht or 2% from December 31, 2019. It was due to the following reasons:

- **Account receivables:** decreased by 475 million baht or 5% from the end of 2019, mainly due to a decrease in crude oil price. Most of customers make payment on schedule. The Company's credit

team policy is about 7 - 120 days. As of December 31, 2020, there were overdue more than 3 months account receivables amounting to 30 million baht or only 0.31% of the total account receivables which incorporated in the provision for doubtful debt of 30 million baht. The average collection period for 2020 was 20 days, increased by 3 days from the end of 2019.

Accounts receivable by payment period are as follows.

(Unit: Million Baht)

	2020			2019		
	Other Parties	Related Parties	Total	Other Parties	Related Parties	Total
Current	5,272	3,628	8,900	5,259	4,023	9,282
Overdue	744	12	756	424	426	850
- less than 3 months	714	12	726	390	417	807
- over 3 months but less than 12 months	2	-	2	8	9	17
- over 12 months	28	-	28	26	-	26
Total	6,016	3,640	9,656	5,683	4,449	10,132
<u>Less</u> Allowance for doubtful accounts	(30)	-	(30)	(32)	-	(32)
Total Account Receivables	5,986	3,640	9,626	5,651	4,449	10,100

- **Inventory:** decreased by 4,826 million baht or 19% mainly due to a decrease in crude oil price and products price following a slowdown market situation while an increase in inventory volume. The average inventory period was 49 days, increased by 8 days from the end of 2019.

- **Other current assets:** increased by 5,025 million baht or 67%. This was mainly attributed to an increase in cash and cash equivalents by 5,815 million baht whereas a decrease in refundable value-added-tax of 1,048 million baht.

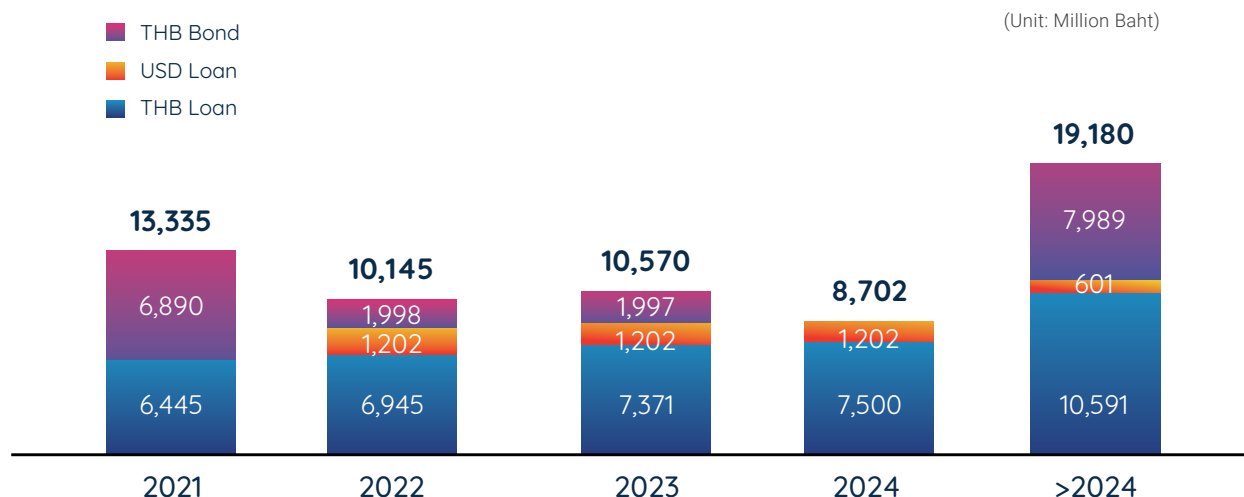
- **Non-current assets** decreased by 4,083 million baht or 3% mainly due to a decrease in fixed assets and investment properties of 6,518 million baht which mostly declined by an increase of the accumulated depreciation. While deferred tax asset increased by 1,436 million baht, investments in joint ventures and associates increased by 451 million baht and intangible assets rose by 211 million baht.

Liabilities

As of December 31, 2020, the Company had total liabilities of 97,825 million baht, increasing by 3,376 million baht or 4% compared to the end of 2019. It was due to the following reasons:

- **Short-terms borrowing from financial institutions:** decreased by 6,900 million baht or 100%. It was mainly due to an increase in liquidity from the issuance of debentures amounting to 12,000 million baht.
- **Account payables:** decreased by 889 million baht or 4%. It was mainly due to a decrease in crude oil price following a slowdown market situation while an increase in accrued crude payable. The average payment period was 50 days, increased by 11 days from the end of 2019. This was mainly owing to the extension period for crude payable in order to increase the Company's liquidity.

Maturity of Long-term Borrowing



Note: Long-term borrowing as of 31 Dec 2020

- **Other current liabilities:** increased by 996 million baht or 17% mainly due to an increase in other payables of 1,248 million baht and an increase in financial derivative liabilities of 341 million baht while a decrease in accrued bonus expense of 721 million baht.
- **Long-term borrowing including current portion within one year:** increased by 9,861 million baht, mainly due to the issuance of unsubordinated and unsecured debentures in the amount of 12,000 million baht, long-term loans drawdown of 6,050 million baht while there was loans repayment to financial institutions of 8,203 million baht.

The details of long-terms borrowing are shown below;

(Unit: Million Baht)

	Dec 31, 2020	Dec 31, 2019	Change
Thai Baht Bonds	18,873	6,888	11,985
USD Loan	4,207	6,021	(1,814)
Thai Baht Loan	38,852	39,162	(310)
Total	61,932	52,071	9,861
<u>Less</u> current portion of long-terms borrowing	(13,335)	(8,190)	(5,145)
Net Outstanding Borrowing	48,597	43,881	4,716

Note:

As of December 31, 2020, the Company had Cross Currency Swap (CCS) in a total amount of 90 million USD.

- **Other non-current liabilities:** were up by 309 million baht or 6%. This was resulted from an increase in financial derivatives liabilities by 154 million baht and lease liabilities by 90 million baht following the recording of leasing transactions in accordance with Thai Financial Reporting Standard No.16 Leases which effective on January 1, 2020.

Shareholders' Equity

As of December 31, 2020, shareholders' equity was amounted to 75,665 million baht, which was lower than what was stated as at 31 December 2019 by Baht 7,737 million or 9%. This was mainly from net loss amounted to 6,152 million baht, dividend paid by 2,041 million baht and the revaluation of employee benefit liabilities increases by 111 million baht. However, there was retained earnings adjustment by 546 million baht owing to the recognition of unrealized gain from derivatives contracts, in accordance with Thai Financial Reporting Standards No.9 Financial Instruments.

Statement of Cash Flow

(Unit: Million Baht)

	2020	2019
1. EBITDA	4,692	5,940
2. Change in operating assets and liabilities	6,457	1,587
3. Net cash flows from (used in) operating activities	11,149	7,527
4. Net cash flows from (used in) investing activities	(3,871)	(5,954)
5. Net cash flows from (used in) financing activities	(1,463)	(875)
6. Net increase (decrease)	5,815	698
7. Cash at beginning	3,036	2,338
8. Cash at ending	8,851	3,036

As of December 31, 2020, the ending cash was 8,851 million baht. Net cash flow increased by 5,815 million baht, which was mainly contributed from the following items;

- **Net cash inflow from operating activities** of 11,149 million baht. The cash inflow from EBITDA of 4,692 million baht, a decrease in inventory of 4,799 million baht, a decrease in refundable value-added-tax of 1,048 million baht, an increase in account payables of 1,383 million baht, an increase in other non-current liabilities of 663 million baht and a decrease in account receivable of 472 million baht. Nevertheless, the cash outflow mainly from a decrease in trade account payable of 888 million baht, a decrease in accrued bonus expense by 721 million baht and payment for employee benefit of 488 million baht.
- **Net cash outflow from investing activities** of 3,871 million baht, mainly from disbursement for projects amounting to 3,313 million baht such as Floating

Solar project, RDCC Catalyst Cooler project, payment for the investment in associates of 528 million baht, such as IRPC Clean Power Co.,Ltd., MYTEX Polymers (Thailand) Co.,Ltd., WHA Industrial Estate Rayong Co.,Ltd. as well as payment for intangible assets of 352 million baht. Nevertheless, cash inflow was mainly attributed to dividend received of 264 million baht.

- **Net cash outflow from financing activities** of 1,463 million baht, net cash outflow were mainly from long-term loans repayment of 8,203 million baht, short-term loans repayment of 6,900 million baht, dividend payment of 2,041 million baht, interest payment of 1,799 million baht and loss on financial derivatives contracts of 380 million baht. Nevertheless, there were cash inflow included the issuance of debentures amounting to 11,982 million baht and long-term loans drawdown of 6,037 million baht.

Liquidity and Capital structure

In 2020, the current ratio was 0.98 times, increasing by 0.03 times compared with 2019 of 0.95 times. Thus, the Company has sufficient liquidity for its operations. At the end of 2020, net interest-bearing debt to equity ratio was 0.71 times, increasing by 0.04 times from

2019 of 0.67 times. This was mainly due to a decrease in shareholders' equity because of net loss in 2020. The Company could complete all payments on the due date and comply with all of the Financial Covenants.

Other Factors Influencing Financial Performance

2021 Business Outlook

1. Petroleum Business

2021 Crude oil outlook: the world oil demand forecast is approximately 99.6 million barrels per day. It is expected to expand by 6.3 million barrels per day after 8.7 million barrels per day contraction of 93.3 million barrels per day oil demand in 2020 following the COVID-19 outbreak. In 2021, the growing demand will be supported by the improvement of the COVID-19 situation, thanks to the rapid progress on the COVID-19 vaccine development. Also, the vaccine has begun to be used in some countries. These may lead to the relaxation of the Lockdown measure, resulting in an increase in economic activity and confidence in the global economic recovery. The World Bank estimates the global economy is likely to expand at 4% this year, compared to the previous year contraction of 4.3%. The recovery is driven mainly by the easing of Lockdown restriction along with the government's economic stimulus through the fiscal and monetary policy to mitigate the impact of the 2019 COVID-19 outbreak. Meanwhile, crude oil production is expected to increase by 3.8 million barrels per day to balance with the oil demand. The crude oil production is likely to increase from OPEC by 2.6 million barrels per day after cutting production by 4 million barrels per day in 2020. OPEC and its allies have continued to cut production by 7.2 million barrels per day through 1Q21 and Saudi Arabia announced a further 1 million barrels per day production cut during February and March leading to positively effects on the crude oil price. Market forecasts 2021 Dubai price at 45-55 USD per barrel, rising from the 2020 average of 42 USD per barrel. A recovery of crude oil price, however, will likely

be subdued if the COVID-19 pandemic persists and cannot be controlled. Also, the higher crude oil price may cause the U.S. crude-oil production to increase.

2. Petrochemical Business

2021 Petrochemical outlook: Petrochemical demand is likely to expand following economic recovery after the successful development of the COVID-19 vaccine in late 2020 and widespread vaccination throughout the second half of 2021 together with the government's economic stimulus packages. The World Bank estimates that the global economy in 2021 will expand about 4% and Asian economies tend to grow more than those in Europe because Asia has dealt with COVID-19 better than Europe. This will support the recovery of the petrochemical business in Asia once again. Moreover, new consumer behavior in the Next Normal, such as online society, higher health consciousness as well as Work From Home are the favorable factors on the demand for home appliances products, electrical & electronics products, packaging, robotics, and electric vehicles (EV cars).

Nevertheless, the demand on petrochemical products improved, the addition capacity will also increase especially from China that has accelerated the petrochemical plants construction in response to the self-sufficiency economy policy. Meanwhile, there are some addition capacities postponed from last year amid the COVID-19 pandemic that may have an impact on the products spread. There are also other factors to watch, such as the U.S. trade policy under Joe Biden government, the impacts and the difficulties of the COVID-19 vaccination, which may affect the demand for petrochemical products.

Investment Projects

1. Investment Project Progress

1.1 The Ultra Clean Fuel Project (UCF): The objective of the UCF Project is to increase refinery plant's efficiency and upgrade diesel quality to meet the Euro 5 standard in response to the government's policy which is expected to announce the Euro 5 new standard diesel fuel in 2024. Under the Euro 5 standard, the permitted sulfur level will decline to 10 parts per million (PPM) from 50 PPM under Euro 4. The project will increase the Company's competitiveness through the higher demand for Low Sulfur Diesel in domestic market and Asean Countries (AEC). In addition to the increase the competitiveness to the Company main product, this project is also environmentally friendly, in line with the modern green factory (Eco Factory) policy, the

Company policy. Currently, the project is under construction bidding process and targeted to be COD by 2023.

1.2 The ABS Powder Expansion Project: The project goal is to upgrade the polymerization unit in order to improve properties of ABS powder, increase cost competitiveness and increase production capacity by 6,000 tons per year. In addition, it will reduce the Volatile Organic Compounds (VOC) released to the environment by gas recovery into the production process. The ABS powder can be used for variety purposes, especially in the quality improvement of recycled plastic that the market demand is likely to grow continuously. Currently, the construction phase of the project has been completed and move to the inspection phase. The project will be COD in 2021.

2. Investment Plan

The Board of Directors has approved the company's five-year (the Year 2021-2025) investment plan in an aggregate amount of 36,251 million baht details. They are including:

(Unit: Million Baht)

Investment Projects	2021	2022	2023	2024	2025	Total
1. Ultra Clean Fuel Project (UCF)	3,492	4,400	4,826	1,530	-	14,248
2. Strengthen Project	1,262	693	415	-	-	2,370
3. General and Maintenance Projects	4,617	2,117	1,476	1,669	1,363	11,242
4. Others	4,153	3,788	450	-	-	8,391
Total	13,524	10,998	7,167	3,199	1,363	36,251

The investment projects are the investment plan which will encourage the Company's business growth where the major investment contributes to strategic and value-added project.

Sustainable Framework

The Company conducts its business and seek to balance of economic, social, and environmental requirements in accordance with the sustainability management framework, both national and

international standard. In 2020, the Company maintains a membership of the Dow Jones Sustainability Indices (DJSI) for the seventh consecutive year and has been awarded as Gold Class from The Sustainability Yearbook 2021 in the Oil & Gas Refining and Marketing industry. In Thailand, the Company has been listed in the Thailand Sustainability Investment (THSI) for the year 2020, the resource group. In addition, the Company is the only large private enterprise to be awarded the Human Rights Model Organization for two years in a row.

In 2020, under the COVID-19 pandemic, the Company had taken a range of actions to protect all stakeholders including;

Employees care: The Company set up a working group of "War Room COVID-19" who was appointed to be the center of management and internal communication, allowing employees to Work from Home as much as possible by using a teleconferencing system to support the meeting. For employees who need to work in the workplace must wear a medical mask, measure fever, wash hands, keep a Social Distancing and there were sterilized cleaning and ozone treatment in the public area for the specified period.

Social care: The Company had focus on building cooperation networks in order to develop innovative medical devices using the Company's products. This will create business opportunities and raise the standard of accessible medical devices and health products as well as reducing the imported products. For example, the Company, its customer, and the Faculty of Medicine, Vajira Hospital Navamindradhiraj University Jointly developed the spun-bond fabric to have waterproof and secretory properties. This fabric is proper for the Personal Protective Equipment (PPE) production, with the same quality as imported products. Another example was the cooperation with Navamindradhiraj University to establish a central laboratory to inspect medical product standards such as surgical masks, N95 masks, and PPE.

Contractors care: The Company controlled and managed contractors. Only those who necessary to come to the workplace will be allowed and they must wear a surgical mask, measure fever, wash hands, keep a social distancing, and there were sterilized cleaning in the public area for a specified period of time. In the Rayong area, the Company organized an IRPC employee

to deliver the survival bags to the COVID-19 affected contractor/ subcontractor.

Regarding sustainable management to create long-term business resilience, the Company has adopted 3 strategies that drive business operations, namely Climate Change Strategy, Circular Economy, and Creating Value for Society to formulate a framework for Corporate Sustainability Strategy through 3Cs strategy, with details as follows:

- 1) Climate Change Strategy:** Aimed to reduce greenhouse gas emissions (GHG, Green House Gas) as a part of reducing global warming, addressing climate change through the production process developing environmental friendly products and services help in reducing greenhouse gas emissions. The examples for the climate change aspects include a floating solar power project, energy efficiency enhancement, as well as Internal Carbon Pricing (ICP).
- 2) Circular Economy:** The main objective is to innovate in the most efficient use of resources and to turn waste into value, ensuring sustainable production and consumption patterns. The Company's Circular Economy is to create a Collector Network that intends to collect used plastic materials from household, commercial, industrial and service activities, or Post-consumer Recycled (PCR) and Post-industry Recycled. (PIR) for sorting according to the purpose of recycling.
- 3) Creating Social Value:** A positive impact on the quality of life and the well-being of society through social responsibility projects. The activities include the joint study with PTT on the raw materials production for medical devices and public health. The Royal Prostheses Project, and Lam Sai Yong Model Project.

Securities, Shareholders, and other Important Information +

Company Name	IRPC Public Company Limited
Stock Symbol	IRPC
Registration No.	0107537002567
Type	Refinery and Petrochemical
Sector	Natural Resources
Group	Energy and Public Utilities
Registered Capital	20,475,000,000 baht, which are divided into 20,475,000,000 common shares, each is valued at 1 baht
Paid-up and Issued Capital	20,434,419,246 baht, divided into 20,434,419,246 common shares, each is valued at 1 baht
Locations	Headquarters and Plants 299 Moo 5, Sukhumvit Rd., Choeng Noen, Mueang Rayong, Rayong 21000 Tel. 0-3861-1333 Fax. 0-3861-2813 Bangkok Office 555/2 Energy Complex, Building B, Floors 6-10, Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900 Tel. 0-2765-7000 Fax. 0-2765-7001
Website	www.irpc.co.th

References

Securities Registrar	Thailand Securities Depository Co., Ltd. 93 Ratchadaphisek Rd., Din Daeng, Din Daeng, Bangkok 10400 Tel. 0-2009-9000 Fax. 0-2009-9991
Auditor	Mr. Mongkol Somphol CPA No. 8444 Deloitte Touch Tohmatsu Jaiyos Audit Co., Ltd. 11/1 AIA Building, Sathorn Tower, Floors 23-27, South Sathorn Rd., Yannawa, Sathorn, Bangkok 10120 Tel. 0-2034-0000 Fax. 0-2034-0100

<p>Debenture Registrar (THB)</p>	<p>2014 Series Debentures (IRPC215A, IRPC215B) TMB Bank Public Company Limited 3000 Phahon Yothin Rd., Chomphon, Chatuchak, Bangkok 10900 Tel. 0-2299-1111</p> <p>2020 Series Debentures (IRPC239A, IRPC259A, IRPC229A, IRPC309A, IRPC359A) Kasikornbank Public Company Limited 1 Soi Rat Burana 27/1, Rat Burana Rd., Rat Burana, Rat Burana, Bangkok 10140 Tel. 0-2470-1038</p>
<p>Frequently Contacted Financial Institutions</p>	<p>TMB Bank Public Company Limited 3000 Phahon Yothin Rd., Chomphon, Chatuchak, Bangkok 10900</p> <p>Krungthai Bank Public Company Limited 35 Sukhumvit Rd., Klong Toey Nua, Wattana, Bangkok 10110</p> <p>Kasikornbank Public Company Limited 1 Soi Rat Burana 27/1, Rat Burana Rd., Rat Burana, Rat Burana, Bangkok 10140</p> <p>Siam Commercial Bank Public Company Limited 9 Ratchadapisek Rd., Chatuchak, Bangkok 10900</p> <p>CIMB Thai Bank Public Company Limited 44 Langsuan Rd., Lumpini, Pathumwan, Bangkok 10330</p>

Securities and Shareholders

Common stocks

As of December 31, 2020, IRPC's Registered Capital totaled 20,475,000,000.00 baht, with 20,434,419,246.00 baht Paid-up Capital at 1 baht par value.

Shareholders

The top 10 shareholders of the Company at the closing date of the registration book/ share roster as of June 1, 2020 were as follows:

Name	Shares	Shareholding (%)
1. PTT Public Company Limited ⁽¹⁾	9,717,524,600	47.55
2. Thai NVDR Company Limited ⁽²⁾	1,226,765,085	6.00
3. Social Security Office	497,374,500	2.43
4. SOUTH EAST ASIA UK (TYPE) NOMINEES LIMITED	380,582,825	1.86
5. STATE STREET EUROPE LIMITED	336,663,765	1.65
6. THE BANK OF NEW YORK (NOMINEES) LIMITED	186,201,000	0.91
7. Mr. Suphot Saphavichaikul	129,000,000	0.63
8. N.C.B. TRUST LIMITED-POLUNIN DEVELOPING COUNTRIES FUND, LLC	102,659,293	0.50
9. Siam Management Holding Company Limited ⁽¹⁾ (100% shares indirectly held by PTT)	102,170,000	0.50
10. GIC PRIVATE LIMITED	85,983,500	0.42

Notes:

(1) PTT Plc, as IRPC's majority shareholder, plays a part in setting the policy for the management and operation of IRPC with the approval of its Board of Directors. As of December 31, 2020, PTT was represented by 3 out of 14 IRPC directors.

(2) Thai NVDR Co., Ltd., a subsidiary of SET, operates the business by issuing non-voting depository receipt (NVDR), which is listed on SET for sale to investors, of which are invested in Thai underlying securities listed on SET. Investors holding NVDRs are eligible for financial benefits such as dividends, rights to subscribe for recapitalization shares like shareholders of listed companies but ineligible for voting at shareholders' meetings. Information of investors in Thai NVDR Company Limited can be found on the website www.set.or.th.

Debentures

As of December 31, 2020, IRPC had 18,889.90 million baht domestic loans in debentures as summarized below.

Thai Baht Debenture

On May 9, 2014, IRPC issued 6 tranches of unsubordinated, unsecured debentures with a debenture holders' representative, totaling 15,000 million baht, of which details are as follows:

- (1) Tranche 1 debentures amounting to 1,366 million baht and Tranche 4 totaling 3,380 million baht with an interest rate of 3.96% per annum; both were matured on May 9, 2017; In 2019, IRPC redeemed the whole amount of both tranches of matured debentures.
- (2) Tranche 2 debentures totaling 1,944 million baht and Tranche 5 amounting to 1,420 million baht with an interest rate of 4.50% per annum, they were matured on May 9, 2019; In 2019, the whole amount of both tranches of matured debentures was redeemed.
- (3) Tranche 3 debentures amounting to 2,940 million baht and Tranche 6 totaling 3,950 million baht with an interest rate of 4.96% per annum, of which redemption date is on May 9, 2021.

On August 21, 2020, IRPC was approved by the Securities and Exchange Commission (SEC) to issue and offer debentures under IRPC Public Company Limited's debenture scheme for 2020 totaling no more than 28,000 million baht (Debenture Scheme), within 2 years (Medium Term Note Program: MTN). In addition, on September 11, 2020, the Company issued 5 tranches of unsubordinated and unsecured debentures with holders' names and a debenture holders' representative, at 1,000 baht par value, totaling 12,000 million baht, of which details are as follows:

- (1) Tranche 1 debentures totaling 2,000,000 units, valued at 2,000 million baht with a fixed interest rate at 3.00% per annum and 3-year maturity; maturity date is September 11, 2023;
- (2) Tranche 2 debentures totaling 4,000,000 units, valued at 4,000 million baht with a fixed interest rate at 3.50% per annum and 5-year maturity; maturity date is September 11, 2023;
- (3) Tranche 3 debentures totaling 2,000,000 units, valued at 2,000 million baht with a fixed interest rate at 2.76% per annum and 2-year maturity; maturity date is September 11, 2022;
- (4) Tranche 4 debentures totaling 1,300,000 units, valued at 1,300 million baht with a fixed interest rate at 2.76% per annum and 10-year maturity; maturity date is September 11, 2030;
- (5) Tranche 5 debentures totaling 2,700,000 units, valued at 2,700 million baht with a fixed interest rate at 4.40% per annum and 15-year maturity; maturity date is September 11, 2035.

As of December 31, 2020, IRPC had the debentures that are not matured as summarized below.

Debenture	Amount (Million Baht)	Annual Coupon Rate	Maturity/ Redemption Schedule
IRPC215A	2,939.90	4.96%, every six months	7 years/ 2021
IRPC215B	3,950.00	4.96%, every six months	7 years/ 2021
IRPC229A	2,000.00	2.76%, every six months	2 years/ 2022
IRPC239A	2,000.00	3.00%, every six months	3 years/ 2023
IRPC259A	4,000.00	3.50%, every six months	5 years/ 2025
IRPC309A	1,300.00	3.93%, every six months	10 years/ 2030
IRPC359A	2,700.00	4.40%, every six months	15 years/ 2035
Total	18,889.90		

Note:

The above debentures are debt instruments offered to the public and institutional investors debt payment and/ or business expansion and/ or working capital of the Company.

All the above Baht-denominated debentures have been rated by Fitch Ratings (Thailand) Company Limited, with the latest credit rating as of July 9, 2020, as A- (tha) and the Company's rating outlook is stable.

Dividend Policy

IRPC Public Company Limited

IRPC's policy is to pay dividends at no less than 25% of its annual net profit after tax and all other reserve allowances, as required by IRPC's Articles of Association and by law. Such dividend payment is subject to its investment plans as well as other obligations and necessities as seen fit by the Board.

Affiliates

Each affiliate will separately consider its own dividend payment, taking into account its operating results, cash flow balances and/ or investment plans, against its legal reserve as well as other obligations as seen fit by each affiliate's board of directors.

Dividend Payment

	2016	2017	2018	2019	2020
Earnings per share (Baht)	0.48	0.56	0.38	(0.06)	(0.30)
Dividend per share (Baht)	0.23	0.29	0.19	0.10	⁽¹⁾ 0.06
Dividend payout ratio	48%	52%	50%	N/A	N/A

Note:

(1) The resolution of the Board of Directors' meeting held on February 9, 2021 approved the 2021 Annual General Meeting of Shareholders to consider and approve the dividend payment for the 2020 operating results at the rate of 0.06 baht per share.



Juristic Persons whose 10% of shares or more are held by IRPC

No.	Company	Shareholding	Paid-up Capital (Unit: Million Baht)
1.	IRPC Oil Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-7000 Fax. 0-2765-7001 Type of Business: Distribution of refined products	99.99%	2,000
2.	Rakpasak Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-7000 Fax. 0-2765-7001 Type of Business: Marine logistics Remarks: Subsidiary of IRPC Oil Co., Ltd.	99.99%	30
3.	IRPC Technology Co., Ltd. Address: 309 Moo 5, Sukhumvit Road, Choeng Noen, Rayong Tel. 0-3802-2835 Fax. 0-3802-2835 ext. 301 Type of Business: Vocational school	99.99%	750
4.	IRPC A&L Co., Ltd. Address: 555/2 Energy Complex, Building B, 9 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-7508 Fax. 0-2765-7550 Type of Business: Sale of polymers	57.48%	10
5.	iPolymer Co., Ltd. Address: 555/2 Energy Complex, Building B, 9 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2117-3994, 06-5717-8856 Type of Business: E-commerce sale of polymers and chemicals	55.00%	120
6.	IRPC Polyol Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-6666 Fax. 0-2765-6677 Type of Business: Production and distribution of polyols	50.00%	370
7.	Mytex Polymers (Thailand) Co., Ltd., Address: 100/60 Sathorn Nakorn Tower, 29 th Floor, North Sathorn Road, Silom, Bangrak, Bangkok Tel. 0-2267-1854 Type of Business: Production and distribution of chemicals	50.00% ⁽¹⁾	120
8.	WHA Industrial Estate Rayong Co., Ltd. Address: 9/187 UM Tower, 18 th Floor, Ramkhamhaeng Road, Suan Luang, Bangkok Type of Business: Industrial estate development	40.00%	665

No.	Company	Shareholding	Paid-up Capital (Unit: Million Baht)
9.	IRPC Clean Power Co., Ltd. Address: 299 Moo 5, Sukhumvit Road, Choeng Noen, Rayong Tel. 0-3861-1333 Fax. 0-3861-2813 Type of Business: Production and distribution of electricity and steam	48.99%	3,362
10.	UBE Chemicals (Asia) Public Company Limited Address: 98 Sathorn Square Office Tower, 18 th Floor, North Sathorn Road, Silom, Bang Rak, Bangkok 10500 Tel. 0-2206-9300 Fax. 0-2206-9312 Type of Business: Production and distribution of petrochemical products	25.00%	10,739
11.	PTT Energy Solutions Co., Ltd. Address: 888 Map Chalud-Laem Son Road, Huai Pong, Rayong Tel. 0-3897-8300 Fax. 0-3897-8333 Type of Business: Engineering consultancy	20.00%	150
12.	Guangzhou Saiju Performance Polymer Ltd. Address: G314, No. 201, Kezhu Road, New and Hi-tech Industrial Development Zone, Science City, Guangzhou, China, 510000 Tel. (86) 020-28143100, (86) 020-28143180 Type of Business: E-commerce distribution of polymers and chemicals from China	15.00%	8.9 (Million Chinese Yuan)
13.	Sarn Palung Social Enterprise Co., Ltd. Address: 555/1 Energy Complex Building A, 10 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2537-2971 Type of Business: Supporting execution of social enterprises	15.00%	2.5
14.	Rayong Acetylene Co., Ltd. Address: 2/3 Moo 14, Bangna-Trad Road, Km. 6.5, Bang Kaeo, Bang Phli, Samut Prakan Tel. 0-2338-6100 Fax. 0-2312-0126 Type of Business: Production and distribution of acetylene	13.04%	115

Note:

Only operating companies are shown.

(1) In 2020, IRPC entered into Share Purchase Agreement with Japan Polypropylene Corporation, a Japanese based company, to acquire 600,000 common stocks, equivalent to 50% of the registered capital, of Mytex Polymers (Thailand) Co., Ltd., a company registered in Thailand, to produce and distribute polypropylene specialty compounds.





Corporate Governance

Corporate Governance Policy

Corporate Governance Structure
and Important Information about the Board
of Directors, Sub-committees, and Executives

Report of Key Corporate Governance Activities

People Management

Internal Control and Connected Transactions

“

IRPC is committed to conducting our business under corporate governance principles with operational excellence, transparency, and auditability to create maximum benefit for shareholders.

”



CORPORATE
GOVERNANCE

Corporate Governance Policy



IRPC's Board of Directors has always been placing great emphasis on the Good Corporate Governance. On behalf of IRPC, the Board of Directors has issued the Corporate Governance Policy, the Corporate Governance handbook, as well as business ethics, which apply to every IRPC executives and employee alike. IRPC's Corporate Governance Policy is based on good corporate governance principles, best practices from the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), suggestions from the Corporate Governance Assessment Reports from the Thai Institute of Directors (IOD), international benchmarks such as the Organization for Economic Cooperation and Development, the ASEAN CG Scorecard, and the Dow Jones Sustainability Index (DJSI), and best practices of leading global companies, all of which to ensure its robustness and long-lasting applications. These guidelines help bolster faith in the Company among shareholders and investors, enable effective and suitable management, and improve competitiveness for the Company's sustainable growth. Information about corporate governance handbook and business code of conduct appear on IRPC's website (www.irpc.co.th)

The Board of Directors intends for IRPC and every subsidiary in the IRPC Group to steadfastly operate within the framework of the Corporate Governance Policy, which will bring about operational excellence, transparency, accountability, and benefits to shareholders without infringing upon the rights of stakeholders. On that account, IRPC has adopted the six pillars of Good Corporate Governance of the Stock Exchange of Thailand as guidelines in the day-to-day operations of the Company for IRPC directors, executive officers, and employees, which are:

1. Creation of Long Term Value
2. Responsibility
3. Equitable Treatment
4. Accountability
5. Transparency
6. Ethics and Code of Conduct

Apart from the six pillars of Good Corporate Governance of the Stock Exchange of Thailand, the Board of Directors also took into consideration to improve the Company's corporate governance by adopting the Thai Corporate Governance Code for Listed Companies 2017 issued by the Securities and Exchange Commission (SEC) as a benchmark for its Corporate Governance Policy. The following principles apply to IRPC's Board of Directors:

- Principle 1: Establish clear leadership role and responsibilities of the board
- Principle 2: Define objectives that promote sustainable value creation
- Principle 3: Strengthen board effectiveness
- Principle 4: Ensure effective CEO and people management
- Principle 5: Nurture innovation and responsible business
- Principle 6: Strengthen effective risk management and internal control
- Principle 7: Ensure disclosure and financial integrity
- Principle 8: Ensure engagement and communication with shareholders

Key Developments of Corporate Governance Policy, Practices, and System in 2020

In 2020, IRPC further elevated and strengthened its corporate governance according to the 2020 Corporate Governance Plan approved by the Corporate Governance Committee. Below is a summary of key developments:

1. Duties of the Corporate Governance Committee

- In 2020, a total of 6 Corporate Governance Committee meetings took place. The Committee approved, consented to, and acknowledged major corporate governance issues-such as the Good Corporate Governance Policy (2020 edition), the Corporate Governance handbook and business ethics, virtual conference platform policy, the Corporate Governance Committee's Compliance Framework and Charter (2020 edition), Conflict of Interest Prevention Policy, prohibition against inside trading, trading blackout period, and Political Neutrality Policy. The Committee also approved the 2021 Corporate Governance Plan, 2021 Cooperate Social Responsibility (CSR) Plan, and 2021 Sustainability Management Plan.

- The Board of Directors and its Committees underwent an annual performance assessment. Their performance assessment forms were reviewed and fine-tuned. The evaluation of board meeting effectiveness was also made more comprehensive.
- In terms of director development, every board member attended a lecture entitled "Roles and duties and the Board of Directors in Information Technology Governance to maximize the Company's efficiency" by experts from the Thai Institute of Directors (IOD)

2. Policy, Framework, and Guidelines for Compliance, Code of Conduct, Transparency, and Anti-Corruption Activities

- The Corporate Governance handbook received an update, which further aligned with the most recent corporate governance guidelines for listed companies from the Stock Exchange of Thailand, the Securities and Exchange Commission, and the ASEAN CG Scorecard. Other anti-corruption measures and international best practices IRPC has adopted include the UN Global Compact, the UN Sustainable Development Goals (SDGs), and other UN declarations, especially those pertaining to human rights and their relevance in business operations.
- The Anti-Corruption Policy was revised to better comply with the PTT Group Way of Conduct.
- The Compliance Policy also underwent a revision, which rendered it more inclusive of notable issues per international standards, to bring about effective implementation.

3. Corporate Governance Awareness Activities in 2020

IRPC has taken action to raise awareness and understanding of good corporate governance among its executives, employees, business partners, customers, and all staff from IRPC's subsidiaries by organizing the following activities.

Anti-corruption activities

- IRPC and the IRPC Technological College have been renewed their Thai Private Sector Collective Action Coalition Against Corruption (CAC) membership for the second consecutive period.
- IRPC Oil Company Limited made a declaration to become a member of the Private Sector Collective Action Coalition against Corruption (CAC).
- The Company joined the 2020 Anti-corruption Day activity through the Anti-corruption Organization Facebook Live platform, under the concept of "Power of Data: Detecting Corruption and Fraud at Your Fingertips".
- The Company attended the 2020 International Anti-corruption Day (Thailand) activity via the NACC Office Facebook Live, under the concept of "Zero Tolerance: Thais do not tolerate corruption".
- The Company attended a conference with The Committee on Study and Examination of Corruption, Misconduct and Governance Straightening/ Senate to discuss the performance of large-scale corporate management. IRPC received its 8th Corporate Transparency Award for its contribution in problems management, obstacles, and suggestions on operational transparency within the organization.
- IRPC attended "STRONG: Sufficient Organization Against Corruption" workshop, with the objective to coach future leaders for the NACC's "STRONG Sufficiency and Corruption" project.
- IRPC's executives and employees both prepared a 100% Conflict of Interest report (COI) for the 6th consecutive year.

Human Rights Activities

- The Company attended a conference with the Department of Protection of Rights and Liberties to drive the national plan of action on business and human rights.
- Deputy Governor of Corporate and Social Affairs from Metropolitan Electricity Authority paid a visit to IRPC to study the Company's Human Rights activities, as IRPC was awarded the Human Rights Model Organization for 2 consecutive years.
- IRPC became a member of GCNT Human Rights and Labor sub-committee to attend meetings and present ideas to raise awareness about sustainability.

Awareness Building Activities

- The Company organized 2020 IRPC CG Day event under the concept of "Step to the Future: The New CG World" via 100% virtual conference platform, in response to the New Normal situation and to prevent the outbreak of COVID-19. The event's goal was to bring IRPC and PTT group executives and employees onto the same page about ethics and transparency in good governance, as well as building trust among all stakeholders of PTT group. Around 3,027 people participated in this event, and their overall satisfaction rate was 91.37%.





IRPC Cubic Academy held “ESG and Businesses in the New Normal,” led by Thaipat Institute Director Woranut Pearntham. ————— +

- IRPC has been organizing IRPC Cubic Academy, a free-of-charge training program since 2015, with the objective of developing a learning society for the organization. IRPC strives to cultivate quality and ethical personnel who place emphasis on social responsibility awareness, as well as sustainable business operation among all stakeholders, including business partners and customers. In 2020, IRPC Cubic Academy training program was arranged in 6 following categories to support sustainable business growth: 1. Global Trend 2. Human Rights 3. Climate Change 4. ESG 5. Anti-corruption and 6. Ethics. The lecturers were internal and external experts, with an average of 200 participants per course.
- In 2020, IRPC utilized CG e-Learning infographic channel to raise awareness among employees about the following topics: (1) What is CG/ 6 important principles of CG (CREATE)/ Ethical Decision Making. (2) What is COI?/ The important is COI and (3) No Gift Policy.
- IRPC attended the UN Global Compact 20th Anniversary Conference via virtual conference platform, where more than 1,000 representatives of the Global Compact Network Association from each country shared their views on sustainability.
- IRPC, as a committee of GCNT Association, attended Department of Rights and Liberties Protection, Ministry of Justice conference to review the criteria and evaluation methods of Human Rights Model Organizations.
- IRPC announced its commitment to promote Sustainable Goals (SDGs) in accordance with the United Nations guidelines at the “GCNT Forum 2020: Thailand Business Leadership for SDGs” event in celebration of the United Nations Global Compact Network (UNGC)’s 20th anniversary and the United Nations (UN)’s 75th anniversary, with General Prayut Chan-o-cha, Prime Minister and Minister of Defense as the president of the event.
- IRPC produced “CEO Special Series” PR video clip, a semi-documentary of CEO interview named “We Shift World Change”. The video shares the view of IRPC as a GCNT member and its Good Corporate Governance performance such as the Prostheses Project and CSR projects during the COVID-19 crisis.
- The company attended “From ESG to SDGs: Integrating SDGs Impact Measurement and Management Framework in Business and Investment Strategies” seminar organized by the Securities and Exchange Commission (SEC), United Nations Development Program (UNDP) and the Global Compact Network Thailand (GCNT), to generate more knowledge and understanding business sector operations in compliance with Sustainable Development Goals (SDGs) of the United Nations, as well as suggestions on measurement and impacts of SDGs achievement.

Global Compact Network Thailand Activities



Corporate Governance Structure and Important Information about the Board of Directors, Sub-committees, and Executives — +

Shareholders

IRPC conducts business with integrity, taking into account the highest benefit of shareholders, considering sustainable growth and adequate continuous return. In the General Meeting of Shareholders, shareholders will appoint the Board, acknowledge the annual operation result of the Company and consider meeting agenda as stipulated by law, including approval of the financial statement.

Appointment



Board of Directors

The Board of Directors consists of 15 members. The duty is to oversee all corporate operations to ensure the compliance to policies, directions, and targets that will return maximum benefit to shareholders, taking into account the interest of all stakeholders with fairness, social responsibility adherence, under the moral and code of conduct to become the Good Corporate Citizen of the world.

The Board of Directors has envisioned IRPC to become a leading integrated petrochemical complex in Asia by formulating short-and long-term strategic plan to assure that the Company's growth will be in line with targeted direction.

Report



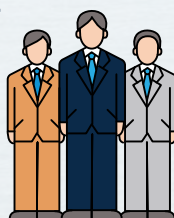
Sub-committee

Audit Committee

is appointed by the Board and the sub-committee shall comprise of at least 3 independent directors, having duty to audit financial statement and to give advice on internal audit procedures. The Board shall have at least 1 member who has adequate knowledge and experience in auditing the accountability of the Company's financial statement.

Nomination and Remuneration Committee

is appointed by the Board and the sub-committee shall comprise of at least 3 members, at least 1 of whom shall be an independent director, having duty in selecting candidates for directorship, sub-committee, President and Chief Executive Officer, including to determine fair remuneration.



Independent Directors

is independent from major shareholders or group(s) of major shareholders and the Company executives. The director's duty is to express their opinions freely under the assigned tasks to protect benefit of all shareholders and stakeholders equally. As of the end of 2020, the Independent Directors consists of 8 members. In the event where the chairman is not an independent director, the independent director may be elected to perform duty in the meeting on some occasions.



Chairman

The Board of Directors elects 1 member as a chairman, to support and promote the performance of the Board at the highest extend of the responsibility assigned, to oversee and monitor management results of the Board and sub-committees to ensure effectiveness as specified in corporate objectives.

Corporate Governance Committee

is appointed by the Board and the sub-committee shall comprise of at least 3 members, at least 1 of whom shall be independent director, having duty to propose practice guidelines, give advice on good corporate governance to the Board, to oversee the good corporate governance operation of the Company to ensure the efficiency.

Risk Management Committee

is appointed by the Board and the sub-committee shall comprise of at least 3 members, having duty to formulate risk management policy, risk management plan, and risk management procedures to cover the entire organization.

President and Chief Executive Officer

is appointed and supervised by the Board of Directors, having duty to manage Company's operation to ensure its compliance with objectives, policies, and strategies set forth by the Board as well as report the Company's performance result to the Board in a correct and transparent manner.

Company Secretary

President and Chief Executive Officer

is appointed by the Board of Directors

Senior Executive Vice President

is appointed by the President and Chief Executive Officer. The duty is to manage work under responsibility, policy, and target assigned by the President and Chief Executive Officer.

Management Committee

The duty is to manage and ensure the parallel direction of the whole operations, to consider important matters on business operation, and to screen the agenda as to propose to the Board for approval. The committee comprises of:

- President and Chief Executive Officer
- Senior Executive Vice President
- Executive Vice President

Company Secretary

is appointed by the Board of Directors. The duty is to perform secretarial tasks pursuant to the Securities and Stock Exchange Act B.E. 2551 and as stipulated by the Capital Market Supervisory Board as well as performing duties assigned by the Board.

Corporate Governance Structure and Important Information about the Board of Directors, Sub-committees, and Executives — +

Management Structure 2020

IRPC's management comprises the shareholders, the Board of Directors, and the management team of senior executive officers. The president and chief executive officer of IRPC serve the as highest-ranking officer of the management. The board is accountable to shareholders, while the senior management team is accountable to the board. Efficient management and good corporate governance principles are integral to the design of the management structure, which upholds the previously mentioned relationships between the shareholders, the board, and the executives. The design also brings about competitiveness, long-term value for shareholders, and sustainable growth. IRPC fairly and equitably considers the interests of all stakeholders. Its transparent operations embody its corporate social responsibility.

According to corporate governance best practice, a company's shareholders elect a board of directors to oversee operations on their behalf. The board gives visions, business directions, policies, strategic plans, and annual budgets to senior executive officers to implement. In addition to ensuring the goals set by the board are met, the senior management team monitors

the transparency and efficiency of operations to maximize the benefits and returns on shareholders' investment. The top executives also ensure corporate profitability and sustainable growth, as well as employees' well-being and fair compensation.

Board of Directors

The Board of Directors comprises a total of 15 directors, which is suitable for the size, type, and complexity of IRPC's business. As of December 31, 2020, IRPC had a total of 14 directors as one director resigned on December 1, 2020, resulting in a vacancy. They can be classified as follows.

As of December 31, 2020, IRPC had 14 directors.

- 13 Non-executive directors (93 percent of the entire board)
- One executive director (the president and chief executive officer)

Of the 14 members, eight qualify as independent directors (more than 50 percent), one of whom is female.



Board of Directors as of December 31, 2020

No.	Name	Position (s)		Date of Appointment/ Term	
1.	Mr. Chansin Treenuchagron ⁽¹⁾	Director	Chairman	October 20, 2015 April 4, 2018	1 st term 2 nd term
2.	Mr. Woothisarn Tanchai	Independent Director	Chairman of the Nomination and Remuneration Committee	June 19, 2015 April 4, 2017 July 3, 2020	1 st term 2 nd term 3 rd term
3.	Mr. Nuttachat Charuchinda	Independent Director	Chairman of the Risk Management Committee	April 29, 2016 April 4, 2018	1 st term 2 nd term
4.	Mr. Somnuk Bomrungsalee	Independent Director	Chairman of the Audit Committee	April 9, 2014 April 4, 2017 July 3, 2020	1 st term 2 nd term 3 rd term
5.	Mr. Anusorn Sangnimnuan	Independent Director	Chairman of the Corporate Governance Committee	August 27, 2016 April 4, 2017 July 3, 2020	1 st term 2 nd term 3 rd term
6.	Mr. Ekniti Nitithanprapas	Director	Member of the Risk Management Committee	November 17, 2015 April 4, 2017 July 3, 2020	1 st term 2 nd term 3 rd term
7.	Mr. Kris Imsang	Director	Member of the Nomination and Remuneration Committee	December 2, 2017 April 3, 2019	1 st term 2 nd term
8.	Air Mshl. Boonsuib Prasit	Independent Director	Member of the Nomination and Remuneration Committee	April 3, 2019	1 st term
9.	Miss Siriwan Chierapong	Independent Director	Member of the Audit Committee	April 3, 2019	1 st term
10.	Mr. Charcrie Buranakanonda	Independent Director	Member of the Corporate Governance Committee	May 22, 2019	1 st term
11.	Mr. Wattanapong Kurovat	Director	Member of the Risk Management Committee	August 21, 2019	1 st term
12.	Mr. Jumpol Sumpaopol	Independent Director	Member of the Audit Committee	October 16, 2019 July 3, 2020	1 st term 2 nd term
13.	Mr. Noppadol Pinsupa ⁽²⁾	Director	Member of the Corporate Governance Committee	February 1, 2019 December 1, 2020	1 st term 2 nd term
14.	Mr. Chawalit Tippawanich ⁽³⁾	Director/ President and Chief Executive Officer	Member of the Risk Management Committee/ Secretary to the Board	December 1, 2020	1 st term

Notes:

At either the Annual General Meeting of Shareholders or the board meeting, the following directors were appointed to the board to replace directors who retired by rotation or resigned in 2020:

(1) Mr. Chansin Treenuchagron resigned as director and chairman, effective on January 1, 2021.

(2) Mr. Noppadol Pinsupa resigned as director, member of the Risk Management Committee, Secretary to the Board of Directors, and President and Chief Executive Officer, effective on November 30, 2020, and was appointed director and member of the Corporate Governance Committee, effective on December 1, 2020, replacing Gen. Nattaphon Narkphanit, an independent director who resigned on October 1, 2020.

(3) Mr. Chawalit Tippawanich was appointed director, member of the Risk Management Committee, President and Chief Executive Officer, and Secretary to the Board of Directors, effective on December 1, 2020, replacing Mr. Noppadol Pinsupa, who resigned on November 30, 2020.

(4) Mr. Worawat Pitayasiri resigned as director and member of the Risk Management Committee, effective on December 1, 2020.

Authorized Directors

The following three directors are authorized to act on behalf of the Company pursuant to the Company Certificate dated January 7, 2021: (1) Mr. Noppadol Pinsupa, (2) Mr. Kris Imsang, and (3) Mr. Chawalit Tippawanich. For the authorization to be legally binding, two of these three directors must imprint their signatures and affix the IRPC seal.

Composition and Qualifications of the Board

1. The Board of Directors shall consist of 5-15 members.
2. Independent directors shall account for at least one-third of the board, and there shall be at least three of them.
3. Directors shall not be older than 70 years of age.
4. Each director shall serve a 3-year term, after which he or she may seek to be re-appointed, subject to legal provisions. Nonetheless, a director may only serve up to three consecutive terms or nine years. There shall be no exceptions.
5. The following limitations shall apply to board members' directorships in state enterprises or other companies listed on the Stock Exchange of Thailand:
 - (1) Up to three state enterprises or juristic persons whose shares are held by a state enterprise.
 - (2) Up to three companies listed on the Stock Exchange of Thailand. The combination of directorships in (1) and (2) must not exceed five.
6. Directors shall be experts in their respective fields. Their combined expertise shall satisfy the needs of the Company. There shall be a minimum of three petroleum or petrochemical experts, one legal expert, and one accounting and finance expert. Their appointment shall comply with IRPC's nomination policy and criteria, which takes into account their education, management experience in relevant fields, and success recognized by businesses whose size is equivalent to that of IRPC.
7. Directors shall possess all of the required qualifications but none of the prohibitions pursuant to the Public Limited Company Act, the Securities and Exchange Act, the Capital Market Advisory Board's notifications, rules, and regulations of the Securities and Exchange Commission and the Stock Exchange of Thailand, IRPC's Articles of Association and corporate governance principles, and other pertinent laws. They shall also be free

from any questionable traits that render them unfit for running IRPC's businesses.

8. Directors shall possess all of the required qualifications but none of the prohibitions pursuant to the Cabinet Resolution dated January 24, 2011, on the appointment of high-ranking government officers and directors in state enterprises or juristic persons whose shares are held by state enterprises.
9. Directors' character traits and personal image shall complement and support corporate governance to add value to IRPC, including ethics, integrity, independence, assertiveness, creativity, a duty of care, a duty of loyalty, dedication, and good social standing.
10. For former directors, their past performance, commitment, and beneficial opinions and recommendations shall also be considered.

Independent Director

According to corporate governance principles adopted by IRPC, one-third of the Board of Directors shall be independent directors. Both directors and independent directors shall serve a 3-year term. Independent director retiring by rotation may seek to be re-elected by shareholders; however, they may only serve up to three consecutive terms or nine years. There shall be no exceptions.

Independent directors shall possess the expertise and qualifications of independence pursuant to notifications of the Capital Market Supervisory Board and stipulations of the Board of Directors. According to company policy, independent directors shall hold no more than 0.5 percent of IRPC's issued shares; this requirement is more stringent than the 1 percent stipulation of the Securities and Exchange Commission. The definition of an IRPC independent director shall be disclosed in the Corporate Governance Handbook and on the Company website. Independent directors shall be free to speak their minds at every meeting. They shall attend meetings regularly and have access to sufficient financial and business information, which enables them to express their thoughts freely in the best interests of stakeholders. In doing so, they shall also prevent conflicts of interest between IRPC and its executive officers, authorized directors, and majority shareholder.

As of December 31, 2020, there are eight independent directors, which accounts for more than half of the board (which is more than the legal requirement of one-third). The names of IRPC's current independent directors are as follows:

1. Mr. Woothisarn Tanchai	Independent Director
2. Mr. Somnuk Bomrungsalee	Independent Director
3. Mr. Anusorn Sangnimnuan	Independent Director
4. Mr. Nuttachat Charuchinda	Independent Director
5. Air Mshl. Boonsuib Prasit	Independent Director
6. Miss Siriwan Chierapong	Independent Director
7. Mr. Charcrie Buranakanond	Independent Director
8. Mr. Jumpol Sumpaopol	Independent Director

The duties and responsibilities of independent directors are as follows:

1. Independent directors shall familiarize themselves with their duties and responsibilities set forth in the Public Limited Company Act B.E. 2535 and the Securities and Exchange Act B.E. 2535. They shall also adhere to best practices of the Securities and Exchange Commission, the Stock Exchange of Thailand, and other regulators.
2. Independent directors shall encourage fellow directors and the Company's executive officers to perform their roles responsibly, carefully, and honestly in compliance with pertinent laws, company objectives, the Articles of Association, board and shareholder resolutions, and regulations of oversight agencies.
3. Independent directors shall encourage the Company to adopt good corporate governance principles and best practices seriously.
4. Independent directors shall ensure that the Company has appropriate and efficient internal controls and risk management.
5. Independent directors shall ensure that the Company complies with the Connected Transaction Policy. They shall also ensure that the disclosure of related party transactions, other important events, information that may benefit shareholders, and changes that may affect the price of its securities conform with the conditions and timeline requirements of the Stock Exchange of Thailand.
6. Independent directors shall freely speak their minds and offer suggestions for the benefit of the Company, minority shareholders, and other stakeholders.

7. Independent directors may perform other tasks at the request of the board as long as they do not interfere with their independence.
8. Independent directors shall meet at least once a year.

If an independent director post becomes vacant, IRPC shall first appoint a qualified individual who fits the definition of an independent director to fill the position and maintain the minimum number of independent directors required by the Capital Market Supervisory Board and corporate governance best practice. If another director later qualifies as an independent director by meeting the established requirements, that director shall automatically be considered an independent director. In practice, however, IRPC will still ask the Nomination and Remuneration Committee to review this director's qualifications.

Appointment and Dismissal

The following is a summary of the director appointment and dismissal procedures:

Director Appointment

1. Shareholders shall appoint directors. The Nomination and Remuneration Committee shall compile a list of potential candidates and present it to the board. Once approved, the list of nominees shall go before the annual general meeting of shareholders for consideration and election under the following criteria:
 - (1) One share shall be equal to one vote. Each shareholder's number of votes shall be subject to the number of shares held.
 - (2) Shareholders may cast their votes for individual candidates or once collectively for all directors to be elected, whichever the shareholders deem appropriate. Each candidate, by individual or collective voting, shall receive the number of votes per the total number of shares held by each shareholder under (1) Shareholders shall never split their votes.
 - (3) The ranking of successful candidates, the number of whom is equal to the number of directors to be elected, shall be subject to the number of votes received. If candidates secure equal votes, which makes the number of successful candidates greater than that of directors to be elected, the chairperson of the meeting shall cast the deciding vote.

2. The board shall elect one of its members as the chairperson. It may also select one or more of its members to serve as the vice-chairperson(s). Their duties shall be as prescribed in the Articles of Association and assigned by the chairperson. (There are currently no vice-chairpersons.)
3. The board shall appoint the president and chief executive officer, following the established procedures and regulations. The president and chief executive officer shall also serve as a director and a secretary to the board.
4. If any director post becomes vacant for any reason other than retirement by rotation, the board shall select a qualified person without any of the legal prohibitions at their next meeting. If the remaining term is less than two months, the new director shall only serve the remainder of the term. The board may only pass a resolution on this matter with at least three-quarters of the votes of the remaining directors.
5. If the board no longer has a quorum as a result of vacancies, the existing directors may only call for a shareholder meeting to elect new directors to fill

the vacant posts. This meeting shall take place within one month from the date on which the quorum no longer exists. The newly elected directors shall serve only the remaining term of whomever they replace.

6. The newly elected directors shall attend a director orientation within three months from their respective date of appointment to learn all of the necessary and pertinent information.

Dismissal

1. Directors shall retire by rotation after completing a term of three years; however, they may seek re-election.
2. In addition to retirement by rotation, a directorship shall end with death, resignation, lack of qualifications, possessing qualities prohibited by law, the resolution of a shareholder meeting, or court order.
3. Directors wishing to resign shall tender their resignation letter to the Company. The resignation shall take effect on the date the resignation letter reaches the Company.



The Board of Directors visited IRPC Innovation Center.

Board Duties and Responsibilities

The Board of Directors has a duty of care and a duty of loyalty. Accountable to the shareholders, it oversees business operations and management's conformity with the established policies, guidelines, and goals in the best interests of shareholders within the framework of ethics and for the benefit of all stakeholders. The following are board duties and responsibilities:



1. The board shall define IRPC's vision, direction, and strategies in a way that supports sustainable growth while balancing economic, social, and environmental factors. Board members shall fully express their views. They shall value all information that might prove beneficial to the process of establishing business directions. The board shall consider potential financial and non-financial risks to ascertain whether management can efficiently implement the defined vision, direction, and strategies according to the goals outlined.
2. The board shall review and determine IRPC's principal policies, strategies, objectives, financial targets, and action plans at least once a year. It shall also regularly monitor reports on the implementation of action plans according to IRPC's direction and strategies.
3. The board shall ensure reliable accounting, financial reporting, and auditing systems. It shall also supervise assessments of internal control and internal audit, ensuring their efficiency and effectiveness.
4. The board shall consider potential major risk factors and determine a comprehensive framework of risk management. It shall ensure that an efficient risk management system or procedure are in place and seek business opportunities that may arise from these risks.
5. The board shall monitor all potential conflicts of interest, as well as and rectify them as soon as they occur. It shall review all significant business transactions, focusing on maximizing benefits to shareholders and all stakeholders.
6. The board shall arrange for an appropriate compensation system or mechanism for IRPC's senior management, taking into accounts IRPC's performance and business plans, creating short and long-term incentives.
7. According to board policy, the president and chief executive officer's directorship in other companies shall require board approval. Meanwhile, other senior executive officers' directorships in other companies shall necessitate an assent of the president and chief executive officer. The appointment of directors to IRPC's subsidiaries or joint ventures, subject to the proportion of its shareholding or a shareholder agreement, shall also be the board's authority.
8. The board shall define the composition and operational goals of the office of the president and chief executive officer with due consideration to IRPC's business plans and the use of the balanced scorecard framework. Moreover, the board shall regularly assess the performance of the president and chief executive officer, whose compensation is subject to the assessment results, creating short and long-term incentives.
9. The board shall provide suitable communication channels with shareholders and stakeholders. It shall also assess IRPC's disclosures to ensure their accuracy, clarity, transparency, reliability, and conformity with standards.
10. As leaders, board members shall act as role models of conduct under IRPC's corporate governance and corporate social responsibility guidelines.
11. The board shall encourage IRPC to undertake all forms of anti-fraud and anti-corruption activities and promote corporate governance best practices.
12. The board shall appoint a legally qualified individual to serve as company secretary to assume responsibilities set forth in the Securities and Exchange Act and other pertinent regulations.

Authority of the Board

1. The Board of Directors shall have the authority to approve visions, strategies, short and long-term business plans, and critical policies, such as the corporate governance policy, risk management policy, trade competition policy, anti-corruption policy, connected transaction policy, and disclosure policy;
2. Financial regulations, investments, investment directions, financial targets, action plans, and annual budgets;
3. Procurements that exceed the president and chief executive officer's authority;
4. Investment projects and significant operations under the Company's objectives, articles of association, shareholder resolutions, and relevant laws, as well as oversee the efficient and effective implementation of the established policies and plans;
5. Transactions under the Securities and Exchange Act, such as connected transactions and property acquisitions or disposals;
6. Payments of interim dividends to shareholders and staff's annual compensation and bonuses;
7. Performance targets and the President's and Chief Executive Officer performance based

compensation;

8. the president and chief executive officer's positions in other organizations; and
9. executive officers' directorships in IRPC subsidiaries or joint ventures under shareholder agreements or the proportion of shareholding.

Authority of Shareholders

Unless otherwise stipulated by law, the following shall require approval from shareholders. A resolution of this nature may only be passed with at least three-fourths of all votes cast by eligible shareholders present at a shareholder meeting:

1. the sale or transfer of the whole or essential parts of the business to other parties;
2. the purchase or acquisition of a business of another (private) company;
3. making, or amending or terminating the whole or essential parts, of a business lease agreement;
4. assigning another party to manage an IRPC business;
5. merging with another party to share losses or profits;
6. making amendments to the memorandum of association or articles of association;
7. the increase or decrease of IRPC's registered capital or the issuance of debentures; and
8. the merger or dissolution of IRPC.

Authority of the Chairman

IRPC stipulates that the chairperson and the president and chief executive officer shall not be the same individual to ensure a clear separation of power between policymaking and policy execution. This separation also facilitates the leadership of the Board of Directors and its efficient oversight of executive officers. The chairperson's duties and responsibilities include the following:

1. call board meetings, preside over the board and shareholder meetings, and determine business items on the agenda with the president and chief executive officer;
2. approve business items on the agenda of every board meeting with the president and chief executive officer;
3. attend board and shareholder meetings, ensure their efficiency meetings in compliance with IRPC's Articles of Association, encourage directors and shareholders to express their views freely based

on the information duly provided;

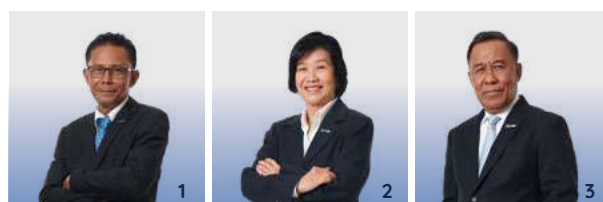
4. equitably encourage shareholders to exercise their rights and protect their interests;
5. help the board fulfill its duties and responsibilities to the best of its abilities under the framework of good corporate governance and to support the president and chief executive officer;
6. supervise and monitor the performance of the board and its committees to ensure that IRPC's objectives are reached; and
7. cast a deciding vote at board meetings in the event of equal votes.

Sub-Committees

Adhering to good corporate governance principles, the Board of Directors has appointed four standing board committees to oversee critical matters in their respective areas. The composition of these committees is as follows:

1. Audit Committee

The Audit Committee shall consist of at least three independent directors. Its composition, including duties and responsibilities, shall meet the requirements promulgated by the notifications of the Securities and Exchange Commission and the framework of the Capital Market Supervisory Board. Each of these directors shall possess the knowledge, expertise, and experience that the role demands. The Audit Committee shall have at least one director with sufficient knowledge and experience in accounting and finance to ascertain whether financial statements are indeed reliable. Its current members are:



- 1) Mr. Somnuk Bomrungsalee (Independent Director) Chairman
- 2) Miss Siriwan Chierapong (Independent Director) Member
- 3) Mr. Jumpol Sumpaopol (Independent Director) Member

All three directors on the Audit Committee possess both the knowledge and experience required to review

IRPC's financial statements.

- | | |
|----------------------------|---|
| 1. Mr. Somnuk Bomrungsalee | Chairman |
| Duration | Nov. 2018 - present |
| Experience | Member of the Audit Committee |
| | Megachem (Thailand) Public Company Limited |
| Dec. 2017 - present | Chairman of the Audit Committee IRPC Public Company Limited |
| 2. Miss Siriwan Chierapong | Member |
| Duration | Experience |
| Apr. 2019 - present | Member of the Audit Committee IRPC Public Company Limited |
| 3. Mr. Jumpol Sumpaopol | Member |
| Duration | Experience |
| Oct. 2019 - present | Member of the Audit Committee IRPC Public Company Limited |

Office of Corporate Internal Audit and Secretary to the Audit Committee

Reporting directly to the Audit Committee, the Office of Corporate Internal Audit ensures that IRPC's operations, as well as the conduct of management and employees, comply with all laws, related rules and regulations, and the internal control system. The office also handles both internal and external whistleblowing reports. The manager of Internal Audit is independent and reports directly to the Audit Committee.

The Audit Committee has appointed the Executive Vice President, Office of Corporate Internal Audit as its secretary to assist it with meeting appointments, meeting agenda, accompanying documents, and meeting minutes. The secretary also contributes to the oversight of the implementation of the Audit Committee's policies. The secretary also possesses the necessary knowledge, competence, and experience to assist the Audit Committee.

Mr. Thammasak Panyowatkool

Mr. Thammasak Panyowatkool served as Internal Audit manager and secretary to the Audit Committee

from January 1, 2016, to December 31, 2020. (His biography appears in Biographies of the Management Team, page 47)

Mr. Prasitsak Sawasduang

Mr. Prasitsak Sawasduang has served as Internal Audit manager and secretary to the Audit Committee since January 1, 2021. (His biography appears in Biographies of the Management Team, page 48)

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.
3. In the event of dismissal, due reasons shall be provided to the Stock Exchange of Thailand.
4. If any committee position becomes vacant for any reason other than retirement by rotation, the board shall appoint a new, qualified director to serve on the committee within three months from the date on which the vacancy occurs.

Duties and Responsibilities

1. The Audit Committee shall review the accuracy and sufficiency of IRPC's financial reports, ensuring that they meet accounting standards stipulated by law.
2. The Audit Committee shall examine IRPC's internal controls, internal audit system, and risk management process for their suitability, sufficiency, and effectiveness.
3. The Audit Committee shall oversee operations' compliance with securities and exchange laws, as well as other pertinent regulations.
4. The Audit Committee shall inspect connected transactions and other transactions with possible conflicts of interest to ensure compliance with laws and regulations of the Stock Exchange of Thailand and to ensure justification of such transactions in the best interests of IRPC.
5. The Audit Committee shall select and nominate an independent auditor; make recommendations on the auditor's fees; dismiss the auditor in the event of incompetence, negligence, or misconduct; and hold a meeting with the auditor at least once a year

without the presence of senior management.

6. The Audit Committee shall make certain that the independent auditor's and Internal Audit's spheres of responsibility and auditing plans are complementary to each other to reduce auditing redundancy.
7. The Audit Committee shall review auditing plans and offer views on the budget and workforce of the Office of Corporate Internal Audit.
8. The Audit Committee shall appoint, transfer, or dismiss the manager of Internal Audit and ensure the independence of the Office of Corporate Internal Audit.
9. The Audit Committee shall oversee the efficiency and effectiveness of IT systems relevant to internal controls and risk management.
10. The Audit Committee shall prepare the Report of the Audit Committee, which is a part of the annual report.
11. The Audit Committee shall access the information needed to review and investigate relevant persons within the scope of duties and responsibilities of the Audit Committee under IRPC's regulations.
12. The Audit Committee shall report to the Board of Directors the timeliness of which allows for improvements or rectifications whenever it finds or suspects a transaction or action may significantly impact IRPC's financial standing and performance, including:
 - (1) conflicts of interest;
 - (2) misconducts, or abnormalities or shortcomings in the internal control system;
 - (3) violations of securities and exchange laws, regulations of the Stock Exchange of Thailand, or other relevant rules.

If the board or management fails to take action promptly without a valid reason, the Audit Committee shall report the incident to the Securities and Exchange Commission or the Stock Exchange of Thailand without delay.
13. The Audit Committee may also perform other tasks mandated by the board.

2. Nomination and Remuneration Committee

The Nomination and Remuneration Committee shall consist of at least three directors, at least one of whom shall be an independent director. Its current



- 1) Mr. Woothisarn Tanchai (Independent Director)
Chairman
- 2) Mr. Kris Imsang (Director)
Member
- 3) Air Mshl. Boonsuib Prasit (Independent Director)
Member

Miss Arisara Suthasut, Executive Vice President of Corporate Affairs and company secretary, has served as secretary to the Nomination and Remuneration Committee since October 1, 2019.

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.

Duties and Responsibilities

Duties and responsibilities of the Nomination and Remuneration Committee can be divided into two parts:

Part 1: Nomination

1. The committee shall review and propose recommendations for the structure, size, and composition of the Board of Directors and board committees based on the size, type, and complexity of the business. In doing so, the committee ensures that the board is transparent and free from the influences of shareholders with controlling power. Its proposal shall be submitted to the board or shareholders at a shareholder meeting or both to obtain approval.
2. The committee shall review the qualifications of each director candidate. The following criteria shall be taken into consideration:
 - 1) Directors to serve on the board shall have the necessary skills, knowledge, capabilities, and

other qualifications but none of the prohibitions stipulated by laws and other pertinent regulations, including the Corporate Governance Handbook and Articles of Association.

- 2) Directors to serve on the board shall have excellent general characteristics, including ethics, responsibility, factual decision making, maturity, expression of different and independent points of view, adherence to professional principles and standards, and diversity of knowledge, work experience, age, and gender.
- 3) Directors to serve on the board shall possess skills that suit the business needs and requirements of IRPC. It shall also be in IRPC's best interest if the candidate is on a list guaranteed by a government agency.
- 4) Directors to serve on the board shall be able to dedicate their time fully to the position. Their directorships in other companies, state enterprises, or listed companies shall satisfy the following requirements:
 - Up to three state enterprises or juristic persons whose shares are held by a state enterprise.
 - Up to three companies listed on the Stock Exchange of Thailand. The combination of directorships in (1) and (2) must not exceed five.
3. The committee shall review the qualifications of each independent director candidate, taking into account good corporate governance principles, the criteria of the Securities and Exchange Commission and the Stock Exchange of Thailand. The committee shall also ensure that these candidates do not possess any of the prohibitions stipulated by law and related regulations.
4. The committee shall propose the criteria and process for nominating incoming directors to the board for approval.
5. The committee shall recommend appropriate director candidates in the event of a vacancy or retirement by rotation to the board or shareholders at a shareholder meeting for approval, whichever the case may be.
6. The committee shall nominate suitable members of the board to serve on different board committees. The appointments shall be subject to the board's assent.
7. The committee shall carefully vet appropriate candidates for the president and chief executive

officer in the best interest of IRPC. The appointment of the president and chief executive officer shall be subject to the board's assent.

8. The committee shall determine the president and chief executive officer's duties, responsibilities, and performance targets. Leadership, social responsibility, establishment and implementation of strategies, financial performance, relationship with the board, and succession plan, creation of and promotion of positive corporate image shall serve as the criteria for evaluating the president's performance and annual compensation adjustment. The proposal shall be subject to the board's approval.
9. The committee shall assess the performance of the president and chief executive officer annually, which it shall use as a benchmark to adjust the president's compensation, including the monthly salary, pension, bonus, welfare package, and other monetary and non-monetary benefits, based on the defined criteria. The proposal shall be subject to the board's approval.
10. The committee shall oversee executive succession planning to ensure business continuity in the event that the president and chief executive officer or other senior executive officers retire or are unable to perform their role.

Part 2: Compensation

1. The committee shall examine and propose director compensation's structure and its criteria. Components of director compensation shall include cash retainers, bonuses, meeting allowances, and other monetary or non-monetary forms of compensation. Compensation for the board and its committees shall be adequate and fair, as well as correspond to the size of the business, to attract and retain qualified directors for the benefit of shareholders. Director compensation shall require the approval of shareholders.
2. The committee shall determine the criteria for the compensation of the president and chief executive officer, as well as its components, taking appropriateness, adequacy, and fairness into account to motivate the president to create value-added to IRPC sustainably. The compensation plan is designed to retain a leader of great caliber. The president and chief executive officer's compensation shall be subject to the board's assent.

3. If needed, the committee may engage external consultants to advise it on the appropriate compensation for directors and the president and chief executive officer. IRPC shall bear the expenses.
4. The committee may also perform other tasks mandated by the board.

Director Nomination Process

The Nomination and Remuneration Committee reviews and selects suitable candidates for election to the board or appointment to board the committees based on these desired qualification criteria determined by the board:

1. The candidates shall possess suitable knowledge, experiences, and abilities that will benefit IRPC, especially in the fields of business or industries related to IRPC's primary operations. Their presence on the board shall satisfy board composition requirements and be aligned with IRPC's business direction.
2. The committee shall consider the board's skills matrix and diversity, including genders, ages, fields of expertise, experiences, and hard and soft skills, as well as sustainability factors. Director nominees, if appointed, should be able to perform their role efficiently and complement the board as a whole with their unique knowledge, competence, experience, and diversity for the benefit of IRPC. Data from the director pool shall also be taken into consideration.
3. The nominees shall possess all of the desired qualities but none of the prohibitions stipulated by law, such as the Public Limited Company Act B.E. 2535, the Securities and Exchange Act B.E. 2535, and other pertinent regulations.
4. The committee shall consider the director nominees' track record of commitment and dedication, and in cases of returning directors, their past performance.

Nominees' directorships in other listed companies must not prevent them from fulfilling the needs of IRPC's business. In addition, the number of their directorships shall not exceed the established limit and shall conform to the Cabinet Resolution dated January 24, 2011, on the appointment of high ranking government officers and the appointment of directors in state enterprises.

5. The committee shall ensure that directors' independence satisfies the requirements of the Securities and Exchange Commission and those of IRPC. If any of the existing independent directors can no longer meet these requirements, the committee shall also consider the necessity for additional independent directors to maintain the structure of the board as defined in its policy.
6. The committee shall determine the term of office for independent directors. A returning independent director may serve up to three consecutive terms or nine years.
7. The committee shall speak with qualified candidates before nomination to ascertain whether they would be willing to accept a directorship in IRPC if appointed.
8. The committee shall present a list of nominees, those who pass the aforementioned criteria, which includes their qualifications and reasons for their nomination, to the Board of Directors. With board approval, the list shall go before the upcoming shareholder meeting for approval. The board shall have the authority to appoint new directors on the list when attempting to fill vacancies that occur during the year, conforming to IRPC's Articles of Association and the Public Limited Company Act. B.E. 2535 (1992)
9. For appointments to board committees, the Nomination and Remuneration Committee shall



The Board of Directors visited IRPC Floating Solar Farm in Rayong.

consider appropriate knowledge and abilities, the composition of each committee, and directorship criteria, such as skills matrix, board diversity, and each director's independence. Nominations shall be submitted to the Board for approval.

3. Corporate Governance Committee

The Corporate Governance Committee shall consist of at least three directors, at least one of whom shall be an independent director. Its role shall be to offer corporate governance guidelines and advice to the board. Its current members are:



- 1) Mr. Anusorn Sangnimnuan (Independent Director)
Chairman
- 2) Mr. Charcrie Buranakanonda (Independent Director)
Member
- 3) Mr. Noppadol Pinsupa (Director)
Member

Miss Arisara Suthasut, Executive Vice President of the Office of Corporate Affairs and Company Secretary, has served as secretary to the Corporate Governance Committee since October 1, 2019

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.
3. The remuneration for members of the Corporate Governance Committee shall be subject to shareholders' approval.

Duties and Responsibilities

1. The committee shall review and propose recommendations to the Board of Directors on the

establishment of GC Framework in accordance with IRPC's operational structure, comparable to international practices or principles.

2. The committee shall prescribe corporate governance policy and guidelines as well as other pertinent matters of great significance, such as the Code of Ethics and the Code of Conduct, sustainability management, social, community, and environmental responsibility, anti-bribery and anti-corruption efforts, and policies related to good governance, risk management, and compliance management (GRC), to ensure compliance with the principles, standards, and requirements of listed company regulators, such as the Stock Exchange of Thailand and the Securities and Exchange Commission, as well as those of other nationally and internationally recognized organizations so as to support IRPC's strategies and goals. The committee shall also review and revise these policies and guidelines on a regular basis.
3. The committee shall establish guidelines as well as supervise and monitor operations' compliance with defined policies and practices so as to continuously improve and elevate IRPC's corporate governance.
4. The committee shall review compliance with corporate governance policy and guidelines as well as other pertinent matters of great significance.
5. The committee shall examine and endorse methods for assessing the performance of the board and its committees. It shall also report assessment results to the Board of Directors and shareholders every year.
6. The committee shall offer consultation, advice, and recommendations on corporate governance guidelines to the Board of Directors.
7. The committee may perform other tasks mandated by the board.

4. Risk Management Committee

The Risk Management Committee shall consist of at least three directors who are petroleum or petrochemical experts. It shall oversee the risk management policy, plan, and procedure for the organization as a whole, taking into account their compliance with corporate and strategic plans. Its current members are:



- 1) Mr. Nuttachat Charuchinda (Director)
Chairman
- 2) Mr. Ekniti Nitithanprapas (Director)
Member
- 3) Mr. Wattanapong Kurovat (Director)
Member
- 4) Mr. Chawalit Tippawanich (Director)
Member

Mr. Somkiat Lertritpuwadol, Senior Executive Vice President of Corporate Strategy, has served as secretary of this committee since January 2019.

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.

Duties and Responsibilities

1. The committee shall formulate suitable, efficient risk management policies and recommendations.
2. The committee shall ensure that all corporate risks are identified, considering external and internal risk factors. It shall also evaluate the impacts and likelihood of these risks. The committee shall rank risks and make proper use of risk management measures.

3. The committee shall support and improve the risk management system. It shall ensure that various risk management instruments, such as financial instruments and derivatives contracts, futures contracts, and hedging, are effectively used.
4. The committee shall supervise, monitor, and review the effectiveness of risk management. It shall also assess the implementation of measures under the risk management framework.
5. The committee shall report risk management assessment results and risk mitigating activities to the board regularly. In addition, it shall inform the board of all critical matters with significant impacts on IRPC's operations without delay.
6. The committee shall provide the necessary support for risk management activities to ensure their continuity and alignment with IRPC's business plan.
7. The committee shall evaluate and offer its advice on risk management for investment projects and activities with considerable technical complications, long-term obligations, and significant risks.
8. The committee shall report its performance in the annual report.
9. The committee may perform other tasks mandated by the board.

Auxiliary Risk Management Committees and Personnel

In addition to the Risk Management Committee of the Board of Directors, IRPC has established the following auxiliary risk management committees and personnel at the management, taskforce, and risk agent levels to monitor and ensure greater efficiency in the Company's overall risk management and internal control system:

1. Risk Management and Internal Control Committee (RMCC)
2. Hedging Committee
3. Risk Managers: overall risk management of a unit
4. Risk Owners: risk management and planning
5. Risk Agents: A risk agent coordinates risk management planning within a unit or project and reports risk management progress or performance to the respective department or project manager to ensure appropriate, sufficient risk management that corresponds to risks at the unit level.



Board and Sub-committee Meetings

The entire year of board meetings are scheduled in advance. A schedule is presented to the board in October or November for approval. As a rule of thumb, a board meeting takes place once a month on the third Tuesday. Additional meetings may be arranged if the need arises.

Together, the Chairman and the president and chief executive director determine agenda items based on a review of potential topics. Directors are encouraged to propose matters for consideration. Notable issues that require regular attention appear on the agenda of each month, such as the progress of an ongoing investment project and company performance. An examination of previous board opinions and resolutions are also part of the agenda to ensure that policies and strategies are properly executed.

The Company secretary arranges each meeting and prepares accompanying documents, ensuring that each session proceeds smoothly. This position

facilitates the work of the directors through various means, such as providing legal and regulatory advice and recommendations, producing supporting documents, and taking meetings minutes, and preparing the venue.

Since 2017, IRPC has benefited from the Board Portal, which is accessible via the internet from computers, smartphones, and tablets. This online platform allows the board to function more flexibly and efficiently. Through it, board members may access IRPC's essential documents, documents for board and board committee meetings, development and learning plans, and a library of past and present information of importance to the board. The platform also accommodates the delivery of meeting notice and agenda with sufficient details seven days in advance to allow directors enough time to prepare themselves.

At every meeting, directors with vested interests or conflicts of interest in an agenda item excuse themselves or abstain from voting on the item in

question. Furthermore, in accordance with the Corporate Governance Policy, the chairman provides ample opportunities for directors to express their opinions freely. All questions are clarified before deciding on the subject by a majority resolution or a special resolution (per IRPC's Articles of Association).

To pass a resolution, at least two-thirds of all directors must be present. Meeting minutes include directors' opinions and observations. They are presented to the board at the next meeting for review and approval. The adopted minutes and related meeting documents are systematically electronically stored for ease of retrieval. Access to these documents is limited, subject to each person's level of confidentiality security clearance.

The Board of Directors had a total of 16 meetings in 2020, consisting of 14 ordinary board meetings and two special meetings. One was an ad hoc meeting to determine and review IRPC's direction, strategies, and business plans (BOD-STs); two were private meetings among independent directors; and another one was a meeting without the executives, promoting conformity with good corporate governance principles. The directors

offered a diverse range of beneficial recommendations. They freely discussed the performance of the management team in detail. The board tasked executive officers with implementing its recommendations and reporting the results back to the board periodically.

At the private meetings of independent directors (May 15 and October 20, 2020), topics discussed included IRPC's research and development in connection to the Eastern Economic Corridor (EEC), efficiency maximization planning, and marketing and logistics planning.

At the meeting without executives (May 21, 2020), the board covered a range of topics of benefit to IRPC, including action plans for off-course investment projects, succession planning, environmental governance, code of conduct case studies, and procurement.

The board as a whole attended 98 percent of its meetings in 2020. Each director attended at least 75 percent of all meetings. The table below summarizes their attendance.

Meeting Attendance of the Board of Directors and Board Committees in 2020

(Unit: times)

Name	Board	Board without Executives	Independent Directors	Audit Committee	Risk Management Committee	Corporate Governance Committee	Nomination and Remuneration Committee	2020 AGM
	(14 Members) Number of meetings: 16	(14 Members) Number of meetings: 1	(8 Members) Number of meetings: 2	(3 Members) Number of meetings: 11	(5 Members) Number of meetings: 7	(3 Members) Number of meetings: 6	(3 Members) Number of meetings: 10	(14 Members) Number of meetings: 1
1. Mr. Chansin Treenuchagron	16/16	1/1	-	-	-	-	-	1/1
2. Mr. Woothisarn Tanchai	16/16	1/1	1/2	-	-	-	9/9	1/1
3. Mr. Nuttachat Charuchinda	16/16	1/1	2/2	-	7/7	-	-	1/1
4. Mr. Somnuk Bomrungsalee	16/16	1/1	2/2	11/11	-	-	-	1/1
5. Mr. Anusorn Sangnimnuan	16/16	1/1	2/2	-	-	6/6	-	1/1
6. Mr. Ekniti Nitithanprapas	15/16	1/1	-	-	7/7	-	-	1/1
7. Mr. Kris Imsang	16/16	1/1	-	-	-	1/1	10/10	1/1
8. Air Mshl. Boonsuib Prasit	16/16	1/1	2/2	-	-	-	10/10	1/1
9. Miss Siriwan Chierapong	16/16	1/1	2/2	11/11	-	-	-	1/1
10. Mr. Charcrie Buranakanonda	16/16	1/1	2/2	-	-	6/6	-	1/1
11. Mr. Wattanapong Kurovat	16/16	1/1	-	-	7/7	-	-	1/1
12. Mr. Jumpol Sumpaopol	16/16	1/1	2/2	11/11	-	-	-	1/1
13. Mr. Noppadol Pinsupa	16/16	-	-	-	6/6	1/1	-	1/1
14. Mr. Chawalit Tippawanich	1/1	-	-	-	1/1	-	-	-
Retired or Resigned Directors in 2020								
15. Gen. Nattaphon Narkphanit ⁽¹⁾	8/11	1/1	1/1	-	-	3/3	-	-
16. Mr. Worawat Pitayasiri ⁽²⁾	14/14	1/1	-	-	6/6	-	-	1/1

Notes:

(1) Gen. Nattaphon Narkphanit resigned on October 1, 2020.

(2) Mr. Worawat Pitayasiri resigned on December 1, 2020.

Management

As chief executive officer of IRPC, the president and chief executive officer oversee all of IRPC's operations under the guidance of the board. He acts in the best interests of the Company and shareholders according to the current circumstance. The president and chief executive officer report any significant change to the management structure to the board for review and approval.

In 2020, IRPC implemented the New Organization with Agile Human (NOAH) initiative. The primary objective

was to restructure the organization in line with business needs, with emphasis on effective cost management to achieve lower and competitive costs as well as a lean manpower structure suitable for IRPC's mission.

The existing structure of different functions was initially maintained under the authority of the president and chief executive officer. However, in October 2020, IRPC carried out the first phase to initiate no-regret moves, which included work assignment and transfer between previous and new responsible officers as well

as the revision of work instructions and related tables of authorities. Key revisions included job grouping, department dissolution, job enlargement, layering and increasing the span of control, establishing essential departments (job creation), and retiring. The purpose was to ensure alignment with IRPC's job value system, expectations, and upcoming adjustment of mindset towards career advancement.

President and Chief Executive Officer

The Board of Directors has tasked the president and chief executive officer, as the top executive officer, with managing IRPC according to the goals, regulations, and policies laid down by the board. The scope of the president's authority has been defined in writing. The Company regulations, meanwhile, serve as the framework within which executive officers and employees operate.



Mr. Noppadol Pinsupa

served as President and Chief Executive Officer from February 1, 2019, to November 30, 2020.

Mr. Chawalit Tippawanich

has served as President and Chief Executive Officer since December 1, 2020.

Duties and Responsibilities

1. The president and chief executive officer shall ensure that the Company operates in conformity with the law, its objectives and Articles of Association, board policies, and shareholder resolutions.
2. The president and chief executive officer shall be in charge of all executive officers, employees, and contractors. Presidential oversight shall include matters of employment, appointment, work

regulations, salary rates, wages, welfare, position transfers, dismissals, promotions (level, salary, or position), and disciplinary actions under the board's policies.

3. The president and chief executive officer shall realize the policies, strategic and business plans, vision, and mission established by the board with efficiency and in the best interests of the Company.
4. The president and chief executive officer shall review and grant approval investment budgets, procurements, and operating expenses according to the business plans and annual budget approved by the board.
5. The president and chief executive officer shall comprehensively and efficiently manage cash flows, investment projects, budgets, and risk management plans and processes within the scope of authority granted by the board.
6. The president and chief executive officer shall examine the Company's operating results and submit interim and annual dividend proposals based on the examination to the board or shareholders for approval, whichever the case may be.
7. The president and chief executive officer shall evaluate the Company's performance and submit a progress report to the board every quarter.
8. The president and chief executive officer shall, as a leader, serve as a role model of compliance and conduct.
9. The president and chief executive officer shall, as a leader, serve as a role model who supports and motivates employees to adopt the IRPC DNA: make appropriate decisions; bolster confidence and corporate image through communications; exercise environmental stewardship and pay attention to social responsibility; and emphasize occupational health and safety.
10. The president and chief executive officer shall ensure that the Company conforms to anti-corruption and anti-bribery guidelines.
11. The president and chief executive officer shall facilitate the Company's commitment to the United Nations' Sustainable Development Goals and good corporate citizenship.
12. The president and chief executive officer shall support the Company's operations under the scope of authority granted by the board.

Senior Executive Officers

The following are IRPC's six senior executive officers per the definition of the Securities and Exchange Commission as of December 31, 2020.

Name	Position
1. Mr. Chawalit Tippawanich	President and Chief Executive Officer
2. Mr. Woravuth Sivapetranart	Senior Executive Vice President, Petrochemical & Refinery Operation
3. Mr. Somkiat Lertritpuwadol	Senior Executive Vice President, Corporate Strategy
4. Mrs. Nidcha Jirametthanakij	Senior Executive Vice President, Corporate Accounting & Finance
5. Miss Wanida Utaisomnapa	Senior Executive Vice President, Corporate Commercial and Marketing
6. Mr. Veerawat Srinoradithlert	Senior Executive Vice President, Corporate Organization Effectiveness and Acting Senior Executive Vice President, Innovation and Operation Excellence

Duties and Responsibilities

1. Senior executives shall implement the president and chief executive officer's policies and goals.
2. Senior executives shall determine and align the strategic plans, objectives, and primary goals of their respective functions with IRPC's vision and mission. These shall guide and be implemented employees in their reporting lines.
3. Senior executives shall ensure that their function achieves predetermined goals, objectives, and short- and long-term strategic plans, operating within the management framework under the organization structure and within the scope of their assignments.
4. Senior executives shall provide advice, support, assistance, and solutions for their team. They shall also create motivations and a work environment that maximize the performance efficiency and effectiveness of the employees in their reporting lines.
5. Senior executives shall encourage employees in their reporting lines to improve themselves and apply their potential in their best interests and those of the Company.
6. Senior executives shall support sustainable corporate growth under good corporate governance principles with due regard to environmental stewardship and social responsibility.
7. Senior executives shall act as IRPC DNA role models for all employees in their reporting line.

Management Committee

The president and chief executive officer has established the Management Committee (MC) to ensure operational systematicity and efficiency, as well as to bolster the

interconnected and good cooperation between the Company, its subsidiaries, its joint ventures, and other companies within the IRPC Group. In addition to the president and chief executive officer, the Management Committee consists of Senior Executive Vice Presidents and Executive Vice Presidents of all business units. The executive vice president of the Office of Corporate Affairs serves as its secretary.

With meetings scheduled once a week on every Monday for the entire year, the Management Committee met 44 times in 2020.

Duties and Responsibilities

Members of the Management Committee consult with one another. Their collective recommendations lead to informed decisions about matters of significance to IRPC's strategies, directions, operational plans, corporate performance, investment plans, budgets, resource management and allocation within IRPC and its affiliates, and alignment of all business operations under one coherent direction. The Management Committee provides the president and chief executive officer-or the board if the matter is beyond the president and chief executive officer's authority-with the information needed to make a decision. Below are its duties and responsibilities:

- 1) The Management Committee shall review and evaluate investment management, investment budget allocation. It shall support the operations of IRPC and its affiliates.

- 2) The Management Committee shall review and assess essential business matters that require the board's approval.
- 3) The Management Committee shall examine the Company's key operation directions based on accurate and complete information.
- 4) The Management Committee shall stay vigilant of corporate, national, and global situations that may impact the Company's business.
- 5) The Management Committee shall oversee the progress of operations under IRPC's major strategies.
- 6) The Management Committee shall review and approve important investment budgets within the authority of the president and chief executive officer.
- 7) The Management Committee shall oversee human resource management policies and mechanisms.
- 8) The Management Committee shall examine risk management.
- 9) The Management Committee shall inspect environmental, social, and governance (ESG) activities.
- 10) The Management Committee shall review occupational health and safety and environmental activities, including accident and whistleblowing reports. The committee shall provide solutions and foster mutual awareness and development.
- 11) The Management Committee shall review internal audit assessment results and solutions proposed by the Audit Committee to bring about organization-wide improvements.
- 12) The Management Committee shall monitor the progress and performance of IRPC and its affiliates, as well as offer beneficial recommendations.
- 13) The Management Committee shall present relevant and function-specific information to ensure that decisions made by the president and chief executive officer or other senior executive officers are well informed.

Management-Level Committees and Working Groups

The president and chief executive officer have established other committees and working groups that suit the needs of IRPC's strategic plan and present situation. They manage, advance, evaluate, and operate according to specific purposes.

- 1) The Rayong Management Committee (RMM) serves as an integrated management team for all IRPC plants in Rayong. The committee aligns the operations of these plants with the corporate vision

and mission, facilitating the achievement of goals.

- 2) The Section 9 Licenses Committee is in charge of managing the use of public properties. It also oversees how community complaints are handled, ensuring transparency and bringing about benefits not only to IRPC but also to surrounding communities.
- 3) The Environmental Management Committee (EMC) oversees environmental management and corporate social responsibility programs, ensuring their alignment with the quality, security, safety, health, environment (QSSHE) and energy management policy.
- 4) Vice President meetings are scheduled in advance on every last Friday of the month. They allow vice presidents of the Company to keep track of all aspects of operational results, jointly consider other business and employee issues or other matters, and review matters of significance to be presented at the MC Meetings.

Company Secretary

In conformity with the Securities and Exchange Act, B.E. 2535 (1992), its B.E. 2551 (2008) amendments, and the Corporate Governance Code, the Board of Directors has appointed the executive vice president of the Office of Corporate Affairs as company secretary, tasked with performing the duties outlined the aforementioned law and announcements of the Capital Market Supervisory Board.

Duties and Responsibilities

With great care, accountability, and integrity, the Company secretary shall:

- 1) provide directors with preliminary legal and regulatory advice, monitor compliance, and report significant changes to the board;
- 2) arrange board and shareholder meetings in accordance with the law, IRPC's Articles of Associations, and general practices;
- 3) prepare the minutes of board and shareholder meetings and ensure compliance or execution of board and shareholder resolutions;
- 4) oversee that information and data are disclosed to regulators in conformity with rules and regulations;
- 5) prepare and catalog important documents, the board of directors' roster, board meeting notices, board meeting minutes, annual reports, shareholder meeting invitations, shareholder meeting minutes, directors' and management's conflicts of interest

- reports, and other duties required by the Capital Market Supervisory Board and related laws;
- 6) prepare information and reports pertaining to the board and corporate governance, which are needed to apply for membership certification, demonstrate good corporate citizenship, and illustrate compliance with national and international standards;
 - 7) conduct anti-corruption activities under the board policies and measures;
 - 8) acquire information, knowledge, and best practices relating to the post's responsibilities and corporate governance at national and international levels and apply them appropriately by attending training programs and seminars to keep abreast of the ever-stricter regulations and management directions; and
 - 9) facilitate one-and two-way communication about good governance with IRPC's stakeholders-including investors, shareholders, the media, and the public.



Miss Arisara Suthasut

Miss Arisara Suthasut has served as Company Secretary since October 1, 2019 (Her biography appears in Biographies of the Management Team, page 45)

Person Assigned the Direct Responsibility of Supervising Accounting Preparation

IRPC appointed Mr. Surachai Toaphicharttrakul as the person supervising accounting on August 1, 2013. He is qualified as per SET's notification.

Mr. Surachai Toaphicharttrakul is currently Vice President, Accounting. He received a Master's degree in Business Administration (Accounting for Planning and Control) from Kasetsart University and consistently attends no less than six hours of accounting knowledge enrichment training per year in compliance with the requirements stipulated by the Department of Business Development's notification. (Further details appear in Biographies of the Management Team, page 47)

Compensation

Director Compensation

The Board of Directors has appointed the Nomination

and Remuneration Committee to determine compensation guidelines for the board and board committee members. The compensation guidelines proposed to the board are as follows:

1. Director compensation shall consist of two components: cash retainer and meeting allowance. There shall be no other benefits, whether monetary or non-monetary.
2. Director compensation amounts shall be based on directors' responsibilities and performance and IRPC's operating results. They shall be comparable to those paid to directors in other companies with similar sizes and business risks to attract directors whose qualifications suit the company's business needs. The compensation survey of the Thai Institute of Directors (IOD) and the Stock Exchange of Thailand shall also be taken into account.

The compensation amounts proposed for 2020 were comparable to the mean of the compensation amount per month per person of other companies from the 2020 survey of directors' cash retainer prepared by the IOD in December 2020.

3. The scope of duties and responsibilities of the board and board committees shall also be considered.
4. The compensation amount for board and committee chairpersons shall be about 30% higher than that of a director.
5. Meeting allowance for each member of board committees-namely the Audit Committee, the Nomination and Remuneration Committee, the Risk Management Committee, and the Corporate Governance Committee-shall be subject to the number of meetings they attend.
6. Compensation for the board and its committee shall be subject to shareholders' approval.

At the Annual General Meeting of Shareholders (AGM) held on July 3, 2020, shareholders voted to approve the proposed compensation amounts for the board and its committees. These were the same amounts offered in 2019.

- 6.1 Compensation for the board and its committees in 2020 is summarized below. (IRPC has used the same rates since 2006)

Directors	Monthly Compensation/ Person	Meeting Allowance/ Person
1. Board		
Chairman	60,000 Baht	60,000 Baht
Director	45,000 Baht	45,000 Baht
2. Sub-committees: Audit Committee, Nomination and Remuneration Committee, Risk Management Committee, Corporate Governance Committee, and other committees yet to be established		
Chairman	None	60,000 Baht
Director	None	45,000 Baht

6.2 Director Bonuses

The Nomination and Remuneration Committee also proposed director bonuses, which were based on IRPC's performance. In 2019, as IRPC reported a loss, the committee proposed that no director bonuses be awarded based on the net profit of 2019, and the

Board of Directors approved the proposal. At the AGM held on July 3, 2020, shareholders voted not to award directors of the Company bonuses based on the net profit of 2019. The compensation of all directors is detailed in the table below.

Below is a summary of the 2020 compensation of every director.

(Unit: Baht)

Name	Cash Retainer	Board Meeting Allowance	Committee Meeting Allowance	Total
1. Mr. Chansin Treenuchagron ⁽¹⁾	720,000	960,000	-	1,680,000
2. Mr. Woothisarn Tanchai	540,000	720,000	540,000	1,800,000
3. Mr. Nuttachat Charuchinda	540,000	720,000	420,000	1,680,000
4. Mr. Somnuk Bomrungsalee	540,000	720,000	660,000	1,920,000
5. Mr. Anusorn Sangnimnuan	540,000	720,000	360,000	1,620,000
6. Mr. Ekniti Nitithanprapas	540,000	675,000	315,000	1,530,000
7. Mr. Kris Imsang	540,000	720,000	450,000	1,710,000
8. Air Mshl. Boonsuib Prasit	540,000	720,000	450,000	1,710,000
9. Miss Siriwan Chierapong	540,000	720,000	495,000	1,755,000
10. Mr. Charcrie Buranakanonda	540,000	720,000	270,000	1,530,000
11. Mr. Wattanapong Kurovat	540,000	720,000	315,000	1,575,000
12. Mr. Jumpol Sumpaopol	540,000	720,000	495,000	1,755,000
13. Mr. Noppadol Pinsupa ⁽²⁾	540,000	720,000	315,000	1,575,000
14. Mr. Chawalit Tippawanich ⁽³⁾	45,000	90,000	45,000	180,000
15. Gen. Nattaphon Narkphanit ⁽⁴⁾	405,000	360,000	135,000	900,000
16. Mr. Worawat Pitayasiri ⁽⁵⁾	495,000	630,000	270,000	1,395,000
Total	8,145,000	10,635,000	5,535,000	24,315,000

(There were no other benefits, whether monetary or non-monetary, provided to directors.)

Notes:

- (1) Mr. Chansin Treenuchagron reimbursed his compensation to PTT Public Company Limited in compliance with the PTT's President Employment Agreement
- (2) Mr. Noppadol Pinsupa resigned as a director and President and Chief Executive Officer, and appointed director on December 1, 2020
- (3) Mr. Chawalit Tippawanich was appointed as President and Chief Executive Officer on December 1, 2020
- (4) Gen. Nattaphon Narkphanit resigned on October 1, 2020.
- (5) Mr. Worawat Pitayasiri resigned on December 1, 2020.

Compensation of the President and Chief Executive Officer

The Nomination and Remuneration Committee has calculated the president's compensation based on well-defined, transparent, fair, and reasonable criteria, taking the role's duties, responsibilities, and performance assessment, as well as IRPC's operating results, into consideration. The proposal for the compensation of the president and chief executive officer was submitted to and approved by the board. The process is as follows:

1. The Nomination and Remuneration Committee proposes the compensation components and criteria to the board for consideration at the beginning of the year.
2. The board approves the proposal and notifies the president and chief executive officer of the performance assessment criteria.
3. The Nomination and Remuneration Committee evaluates the president and chief executive officer's performance based on the established criteria and other factors throughout the year, such as business contexts, challenges, problem-solving skills, crisis communication, social responsibility, environmental stewardship, corporate governance risk management, and the ability to promote good corporate image.
4. The Nomination and Remuneration Committee presents the results of its assessment of the

president and chief executive officer's performance, along with the proposed annual compensation adjustment rate, to the board for approval in December.

Management Compensation

IRPC annually evaluates the performance of every level of management. Its Performance Management System (PMS) consists of three components:

1. Key Performance Indicators (KPIs): KPIs are vital missions set at the corporate level each year. They are in line with corporate goals, performance, and financial performance, which are the duties and responsibility of the management;
2. Competency; and
3. Desired Behavior: The Company expects its management and employees to behave in a certain way while at work to ensure that IRPC achieves its goals qualitatively and sustainably.

In 2020 there were seven executive officers, including one who resigned, according to the Securities and Exchange Commission's definition. They received a total of 53.55 million baht in monthly salaries, bonuses, and provident fund contributions. Below is a summary:

(Unit: Million Baht)

Compensation Components	2018 (18 Persons)	2019 (7 Persons)	2020 (7 Persons)
Cash			
Monthly Salary	81.45	40.05	33.59
Bonus	39.05	12.87	15.3
Others			
Provident Fund Contribution	7.53	3.31	4.66
Total	128.03	56.23	53.55

In 2020, six executive officers received compensation from serving as directors of IRPC A&L Company Limited, IRPC's subsidiaries, in the total amount of 2.15 million baht.

Director of Subsidiaries

1. IRPC Oil Co., Ltd.

Name	Position (s)
1. Mrs. Nidcha Jirametthanakij	Member
2. Miss Wanida Utaisomnapa	Member
3. Mr. Veerawat Srinoradithlert	Member
4. Mr. Somkiat Lertritpuwadol	Acting Managing Director

2. IRPC Polyol Co., Ltd.

Name	Position (s)
1. Mr. Chawalit Tippawanich ⁽¹⁾	Chairman
2. Mrs. Nidcha Jirametthanakij	Member
3. Mr. Woravuth Sivapetranart	Member
4. Miss Wanida Utaisomnapa	Member
5. Mr. Sergiusz Stefanowski	Member
6. Mr. Rafal Zdon	Member
7. Mr. Waldermar Franz Preussner	Member
8. Ms. Soh Bee Hong	Managing Director

3. IRPC Technology Co., Ltd.

Name	Position (s)
1. Mr. Chawalit Tippawanich	Chairman
2. Mr. Veerawat Srinoradithlert	Member
3. Miss Arisara Suthasut	Member
4. Mr. Surachai Toaphicharttrakul	Member
5. Mrs. Kanokphorn Rodrungrong	Member
6. Mr. Phothiwat Paopongchuang	Managing Director

4. IRPC A&L Co., Ltd.

Name	Position (s)
1. Mr. Chawalit Tippawanich	Chairman
2. Mrs. Nidcha Jirametthanakij	Member
3. Miss Wanida Utaisomnapa	Member
4. Mr. Woravuth Sivapetranart	Member
5. Mr. Payom Boonyoung	Member
6. Mr. Toshiro Kojima	Member
7. Mr. Hideyuki Tokimasa	Member
8. Mr. Kengo Shiba	Member
9. Mr. Takayuki Mano	Member
10. Mr. Somkiat Lertritpuwadol	Acting Managing Director

5. Rakpasak Co., Ltd.

Name	Position (s)
1. Mr. Songklod Chareonporn	Member
2. Mr. Surachai Toaphicharttrakul	Member
3. Mr. Somboon Sadsin	Member
4. Mr. Panutat Kiatananchai	Managing Director

6. iPolymer Co., Ltd.

Name	Position (s)
1. Mr. Chawalit Tippawanich	Chairman
2. Mr. Somkiat Lertritpuwadol	Member
3. Mrs. Nidcha Jirametthanakij	Member
4. Mr. Hu Jiezhong	Member
5. Ms. Liu Yuhong	Member

Note:

(1) Mr. Chawalit Tippawanich was appointed as the Chairman of IRPC Polyol Co., Ltd. on January 7, 2021.

Positions of Directors and Executives in Subsidiaries/ Associated Companies/
Related Companies

No.	Name	Company		Subsidiaries			Joint Ventures			Associated Companies			Related Companies		
		IRPC PLC	IRPC Oil Co., Ltd.	IRPC Technology Co., Ltd.	IRPC A&L Co., Ltd.	iPolymer Co., Ltd.	IRPC Polyol Co., Ltd.	WHA Industrial Estate (Rayong) Co., Ltd.	Mytex Polymers (Thailand) Co., Ltd.	PTT Energy Solutions Co., Ltd.	UBE Chemical (Asia) PLC	IRPC Clean Power Co., Ltd.	PTT PLC	PTT Digital Solutions Co., Ltd.	Sport Services Alliances Co., Ltd.
1.	Mr. Chansin Treenuchagron	x													
2.	Mr. Woothisarn Tanchai	/													
3.	Mr. Nuttachat Charuchinda	/													
4.	Mr. Somnuk Bomrungsalee	/													
5.	Mr. Anusorn Sangnimnuan	/													
6.	Mr. Ekniti Nitithanprapas	/													
7.	Mr. Kris Imsang	/											//		
8.	Air Mshl. Boonsuib Prasit	/													x
9.	Miss Siriwan Chierapong	/													
10.	Mr. Charcrie Buranakanonda	/													
11.	Mr. Wattanapong Kurovat	/													
12.	Mr. Jumpol Sumpaopol	/													
13.	General Nattaphon Narkphanit ¹	/													
14.	Mr. Worawat Pitayasiri ²	/											//		
15.	Mr. Noppadol Pinsupa ³	/											//	x	
16.	Mr. Chawalit Tippawanich ⁴	/, //		x	x	x	x			/	/		//		
17.	Mr. Woravuth Sivapetranart	//			/		/	/				/			
18.	Mr. Somkiat Lertritpuwadol	//	/		/	/		/	x			/			
19.	Mrs. Nidcha Jirametthanakij	//	/		/	/	/	/	/		/	/	//		
20.	Miss Wanida Utaisomnapa	//	/		/		/		/		/				
21.	Mr. Veerawat Srinoradithlert	//	/	/											

Notes: X = Chairman / = Director // = Executive

1. General Nattaphon Narkphanit resigned as director and member of the Corporate Governance Committee on October 1, 2020.

2. Mr. Worawat Pitayasiri resigned as a director and member of the Risk Management Committee on December 1, 2020.

3. Mr. Noppadol Pinsupa resigned as a director and President and Chief Executive Officer and appointed director on December 1, 2020.

4. Mr. Chawalit Tippawanich was appointed director / President and Chief Executive Officer on December 1, 2020.

Directors' and Executives Shareholding Report

Directors' shareholding as of December 31, 2020

No.	Name	Shareholding Percentage/ Number of Shares as of Dec. 31, 2019	Shareholding Percentage/ Number of Shares as of Dec. 31, 2020	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2020)	Notes
1.	Mr. Chansin Treenuchagron	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
2.	Mr. Woothisarn Tanchai	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
3.	Mr. Nuttachat Charuchinda	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
4.	Mr. Somnuk Bomrungsalee	0.00024% 50,000	0.00024% 50,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
5.	Mr. Anusorn Sangnimnuan	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
6.	Mr. Ekniti Nitithanprapas	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
7.	Mr. Kris Imsang	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
8.	Air Mshl. Boonsuib Prasit	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
9.	Miss Siriwan Chierapong	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
10.	Mr. Charcrie Buranakanonda	0.00027% 55,000	0.00027% 55,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
11.	Mr. Wattanapong Kurovat	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
12.	Mr. Jumpol Sumpaopol	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
13.	Mr. Noppadol Pinsupa	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	

No.	Name	Shareholding Percentage/ Number of Shares as of Dec. 31, 2019	Shareholding Percentage/ Number of Shares as of Dec. 31, 2020	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2020)	Notes
14.	Mr. Chawalit Tippawanich	None	0.00220% 450,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)		None	No Change	None	

Executives' shareholding as of December 31, 2020

No.	Name	Shareholding Percentage/ Number of Shares as of Dec. 31, 2019	Shareholding Percentage/ Number of Shares as of Dec. 31, 2020	Number of Shares Increased (De- creased) During the Year	WARRANT/ NVDR/ TSR/ DW (2020)	Notes
1.	Mr. Chawalit Tippawanich	N/A	0.00220% 450,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
2.	Mr. Woravuth Sivapetranart	0.00137% 279,351	0.00137% 279,351	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
3.	Mr. Somkiat Lertritpuwadol	0.00145% 295,580	0.00193% 395,580	0.00049% 100,000	None	
	Spouse	0.00008% 15,900	0.00008% 15,900	No Change	None	
	Minor child(ren)	None	None	No Change	None	
4.	Mrs. Nidcha Jirametthanakij	None	0.00122% 250,000	0.00122% 250,000	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
5.	Miss Wanida Utaisomnapa	0.00103% 210,440	0.00103% 210,440	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	
6.	Mr. Veerawat Srinoradithlert	0.00005% 10,579	0.00005% 10,579	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child(ren)	None	None	No Change	None	

As of December 31, 2020, and throughout the past five years, no directors and executive officers have any records of wrongful activities under the Securities and Exchange Act B.E. 2535 (1992) or Derivatives Act B.E. 2546 (2003) or any of the following:

- (1) dishonesty or severe negligence;
- (2) disclosure or dissemination of false information or messages that may cause misunderstanding, or concealing essential facts that should be disclosed, both of which might have affected the decisions of shareholders, investors, or concerned parties; or
- (3) unfairness or taking advantage of investors in the sale and purchase of shares or derivatives or playing a part in supporting such activities.

Report of Key Corporate Governance Activities

IRPC focuses on business operation that complies with Good Corporate Governance principles, adhering to the standards of Listed Companies of the Stock Exchange of Thailand, ASEAN CG Scorecard criteria, and Corporate Governance Report (CGR) of Thai Listed Companies of the Thai Institute of Directors (IOD).

Moreover, the board has adopted Thai Corporate Governance for Listed Companies 2017 (CG Code) as an "Apply or Explain" approach for its Corporate Governance Policy. However, in 2020, there are performance in some categories, which were inconsistent with CGR principles. The Company had considered the replacement measures as follows:

CGR inconsistencies	Company Performances
Prescribing and disclosing more of employee compensation policy that are consonant with the Company's long-term performance (such as conferring ESOP, EJIP).	IRPC has a standardized employee compensation management system for both current and future employees, with flexibility in compensation management to be consonant with the same business group, along with staff performance management system by prescribing corporate indicator (Corporate KPI) based on Balanced Scorecard that are consonant with the short-term and long-term strategic plans, associate company turnover, and employee performance.
The chairman is not an independent director.	IRPC stipulates that the chairman and the president (the top executive officer) shall not be the same individual to ensure a clear separation of duties. The chairman has not participated in management, which results power balance of corporate governance and business management.
The Nomination and remuneration committee shall consist of independent director (more than 50%).	In 2020, There are 3 members of the nomination and remuneration committee, namely 2 independent directors (66.66%) and 1 director.
The Board of Directors shall consist of 5 - 12 members.	According to IRPC's articles of association, the Board of Directors shall consist of 5 - 15 members. There are currently 15 members of the Board of Directors, comprise 8 independent directors (53.33%), 6 directors and 1 executive director, which suit the sizes, types and complexity of its businesses. As a large organization with complex and extensive value chain, it is necessary for the company to have directors with diversity of knowledge and competence in order to encourage the directors and sub-committee for efficiency performance.
How many independent directors among the Board of Directors?	There are currently 15 members of the Board of Directors, consist of 8 independent directors (53.33%)



In 2020, IRPC Corporate Governance encompasses these following five aspects:

1. Rights of Shareholders

The rights of shareholders are of the utmost significance to IRPC. As co-owners, shareholders are entitled to appoint directors to act on their behalf and in their best interest, with the right to decide on crucial changes to the company. IRPC respects and protects these rights by encouraging shareholders to attend shareholder meetings and express their opinion freely, vote, nominate director candidates and propose agenda items before a meeting, appoint or dismiss directors, approve or reject director and auditor remunerations, and approve or reject their shares of the profit or dividends. Moreover, shareholders have the right to access quick, sufficient, and complete information through a variety of channels. This right affords them enough time to understand the stake and decide on the most appropriate action. In 2020, IRPC promoted shareholder rights through the following means:

1.1 Annual General Meeting (AGM)

In 2020, due to the COVID-19 epidemic, IRPC placed great concerns on the health of its shareholders. Therefore, the Board of Directors agreed to postpone the 2020 Annual General Meeting of Shareholders (AGM), originally scheduled on April 7, 2020, to July 3, 2020. The meeting was held at the meeting room on the 6th floor of Energy Complex B and C building, strictly following preventive measures according to the Coronavirus Disease Management Center 2019 and the Bangkok Metropolitan Administration by setting hand sanitizing point with alcohol gel, keeping 1-meter social distance regime to avoid congestion and requirements for Check-In/ Check-Out on the "Thailand Wins" application before registration. All attendees were required to wear face masks at all times in the meeting area, refrain from using microphones, submit questions on paper, and control the meeting time to be within 2 hours. Accordingly, IRPC put the best efforts into maintaining the rights of all shareholders by answering all questions inquired during the meeting. Any inquiries that were not possible for immediate answers were answered on IRPC official website www.irpc.co.th.

In addition, for eight consecutive years, IRPC has been applying guidelines provided by the Thai Listed Companies Association, and the Securities and Exchange Commission by focusing on the “Green Meeting” concept, originally appointed by the Thailand Business Council for Sustainable Development (TBCSD) and the Thai Environment. The main objective is to make all meetings become “Zero Carbon Meeting” or “Carbon Neutral” by choosing the meeting location with access to public transportation such as the MRT, the BTS, and public buses.

In 2020, IRPC’s AGM was assessed by the format of AGM Checklist of the Thai Investors Association, and the result was excellent level of satisfaction (full 100 marks). This proves IRPC’s efforts in AGM arrangement to be in line with the best practices according to the Good Corporate Governance standards. Furthermore, shareholders in attendance answered a questionnaire designed to assess the organizational quality of the meeting. Their opinions and suggestions will serve to improve the next meeting, allowing the Company to better meet their needs.

1.2 Preparation before AGM

- IRPC requested the Board of Directors to issue a notice of the 2020 AGM at the February 2020 Board Meeting. The company disclosed this meeting’s resolutions and agenda via the SET Portal within the same day as soon as the meeting concluded (February 12, 2020), including the announcement of the record date (February 27, 2020) in order to grant shareholders the right to attend the meeting and receive dividend payment. The announcement was made through IRPC’s official website.
- Per company policy, IRPC encouraged every minority shareholder or group of minority shareholders with at least 4% of all issued shares to propose agenda items and to nominate director candidates in advance from September 2, 2019, to January 31, 2020. This is in line with the Good Corporate Governance Assessment Criteria of the Thai Institute of Directors Association (IOD), stipulating that all Thai listed companies should allow shareholders to propose agenda and

nominate directors at least 90 days before the end of the fiscal year. The company issued a letter to notify the Stock Exchange of Thailand and published the said criteria on the company’s website www.irpc.co.th. Nevertheless, in 2020 AGM, none of agenda proposal and nomination was made.

- The Board of Directors specified 7 items on the agenda of the 2020 AGM. Under each agenda item was an explanation of its objective and the board’s comments. (The approval of the 2020 AGM minutes was not one of the agenda items because a copy of the 2019 AGM minutes had previously been sent to every shareholder on IRPC Shareholder Newsletter Vol. 30/2019 for them to have some time to verify the correctness and completeness of the minutes, as well as to dispute any inaccuracies. No shareholders had voiced their concerns, the minutes were considered approved.
- The company sent out meeting invitations (both in Thai and English) and other relevant meeting documents by mail. The invitation letter must be delivered to all shareholders at least 21 days in advance of the meeting date (the invitations were sent on March 6, 2020) and must be published via the company’s website at least 30 days in advance of the meeting date (published on March 3, 2020). In addition, the company has sent the meeting invitation with barcode for registration and a QR code for download. The digital format of 2109 Annual Report and Sustainability Report 2019 were also sent as attachments to the meeting invitations.
- The Company published the public announcement of the 2020 AGM in daily newspapers (both in Thai and English) 3 days in a row before the date of the meeting as a reminder for all shareholders in advance.
- To facilitate the registration for institutional investors, the Company sent out proxy form to all institutional investors before the AGM meeting date. If the shareholders can not attend the meeting in person and wishing to appoint a proxy to attend and vote on their behalf, they can do so by using the proxy form attached with the meeting invitation.



1.3 On the Meeting Day

Due to the outbreak of COVID-19, IRPC strictly followed preventive measures according to the Coronavirus Disease Management Center by setting up screening point and screening form for all shareholders to fill, setting hand sanitizing point with alcohol gel, keeping 1-meter social distance regime to avoid congestion and requirements for Check-In/ Check-Out on the "Thail Chana" application before registration. All attendees were required to wear face masks at all times in the meeting area, and refrain from using microphones, submit questions on paper. Additionally, all attendees were strictly assigned to sit according to the number specified for the convenience of information tracking. Special seats were facilitated for the elderly, the disabled, and pregnant women with staff available for assistance. Foreign shareholders were also equipped with interpreters during the meeting. The AGM was conducted according to the principles of Good Corporate Governance as follows:

- The Company provided a sufficient number of welcoming and registration staff, as well as registration points. Registration began approximately 2 hours before the meeting, which all shareholders were made aware of this process from the invitation. A barcode reader was used for registration and vote

counting, enhancing the efficiency, accuracy, and speed of the process. Shareholders who were delayed were allowed to enter the conference hall even after the meeting had already commenced, and were able to vote on the remaining agenda items as long as the votes had not been cast. The number of shareholders present during the discussion of each agenda item was adjusted once they had joined.



- In 2020, 14 out of 15 directors were present, accounting for 93.33% of the board. The Chairman of the Board acted as the chairman of the meeting. Senior executive vice presidents, executive vice presidents, and members of the management team were available at the front of the stage to provide explanations whenever relevant questions arose.

- An auditor of Deloitte Touche Tohmatsu Jaiyos Audit Company Limited (Mr. Mongkol Somphol), together with legal advisors (Ms. Peangpanor Boonklum, Mr. Manit Suthaporn and Mr. Supot Laosuarpha) were present throughout the meeting for legal consultation. In addition, two volunteers from the shareholders who attended the meeting (Mr. Sombat Mansaithong and Mr. Apidech Jaiboon) were assigned to recheck the vote count during the meeting, ensuring thorough transparency.
- In 2020, a total of 720 shareholders were considered to be present at the meeting. Of this number, 149 attended the meeting in person, while 571 attended by proxy. These shareholders represent 12,454,489,282 shares or 60.95% of all issued shares.
- Before introducing the first agenda item, the chairman informed the meeting about the voting and vote-counting process in clarity.
- During the meeting, the chairman afforded every shareholder equal opportunity and sufficient time to pose questions and speak their mind. The chairman also tasked relevant directors and executive officers with answering these questions with the utmost clarity. Questions, answers, suggestions, and opinions were recorded in the minutes with accurate and complete details for shareholders who were unable to attend the meeting in person.
- Regarding director appointment, IRPC allowed shareholders to vote to appoint directors individually or as a panel of directors. Director nominees were presented to shareholders one by one, and shareholders were able to volunteer as a witness in vote-counting for transparency.
- The chairman informed each meeting agenda in utmost clarity, along with the number of votes (agree, disagree or abstain) in every agenda. The details of the votes were displayed on projector screen for better clarity.
- The chairman strictly led the meeting through all agenda items specified in the invitation. No impromptu items were allowed.

1.4 Conflict of Interest Management at Meetings

IRPC's policy regarding the management of any conflict of interest that might occur at a meeting is as follows:

- IRPC requires all directors, executive officers, and employees to report all potential conflicts of interest annually and during the year in the event of a change. The reports are submitted to the Chairman of the Board of Directors, the Chairman of the Audit Committee, and the Company secretary.
- During the meeting, if any director has a vested interest in a particular agenda item, he or she must inform the meeting of a potential conflict of interest and must leave the meeting. Consequently, the director in question cannot vote on the said agenda item.

1.5 Meeting Minutes and Disclosure of Resolutions

- The quality of meeting minutes is of great importance to IRPC. The Company requires that minutes be recorded wholly and thoroughly. They always include names of directors and executive officers in attendance, details of each agenda item, voting process, vote-display method, questions from shareholders, and answers from the Committee or the Board of Directors, including each meeting agenda and its votes details (agree, disagree, or abstain). All of these practices are in line with the Company's Good Corporate Governance Principles and the law.
- As soon as the meeting concluded, IRPC published the resolution of each agenda item of the 2020 Annual General Meeting of Shareholders (AGM) in both Thai and English on its website and via the SET Portal within the same day (July 3, 2020). The minutes of the 2020 AGM were prepared within 14 days after the meeting (July 15, 2020) and were published in the Shareholder Journal No. 33/2020 and sent to all shareholders by post. Any shareholders who wish to amend or dispute were able to notify the Company secretary by August 31, 2020, for corrective action, otherwise shareholders with no objections were considered as certifying the minutes of the AGM.

2. Equitable Treatment of Shareholders

Respecting and treating all shareholders equitably regardless of their status as a majority, minority, institutional, or foreign shareholder. The Company treats all of its shareholders equitably, with the utmost fairness and without discrimination in the following manners:



2.1 The Right to Vote

- IRPC only issues one class of shares. Every share is the equivalent of one vote.

2.2 Agenda Item Proposal and Director Candidate Nomination

- IRPC provides all pertinent information to shareholders in advance of a shareholder meeting. It also affords every minority shareholder or group of minority shareholders with 4 percent of all issued shares with a voting right to propose agenda items and/or nominate director candidates. For the 2020 Annual General Meeting of Shareholders (AGM), IRPC allowed shareholders to propose agenda items and/or nominate director candidates in advance from September 2, 2019, to January 31, 2020. The Company specified relevant criteria and procedures on its website, as well as notified shareholders via the SET Portal. No proposals or nominations were made throughout the period aforementioned, a fact which the Company secretary informed the Board of Directors.

2.3 Promotion of Shareholders' Attendance

- For the 2020 AGM, IRPC took the convenience of all shareholders and investor into consideration by choosing the meeting location that offered public

transportation perquisites and the meeting venue which could accommodate all attendees. The event was staffed by apposite personnel, such as welcoming staff, public relations staff, registration staff, security staff, and first-aid staff, to facilitate the entire process for all shareholders, especially senior adults and wheelchair users. Arrangement of spare meeting rooms and broadcasting systems between meeting rooms were made, and security preparations and an emergency plan had been rehearsed. Foreign shareholders were provided interpreters during the meeting.

2.4 Appointment of Proxy

- In the event that shareholders were unable to attend the AGM in person, they could appoint a proxy to participate in the meeting and exercise their voting right on their behalf using Proxy Form A or B enclosed with the invitation letter. To facilitate the process further, the Company had included detailed specifications of the documents and other forms of proof required for the proxy in the invitation packet, as well as detailed instructions regarding the matter. By following these instructions carefully, a proxy should encounter no trouble at the meeting. Shareholders could assign any person to attend and vote on their behalf. There were no complicated conditions for appointing a proxy. Moreover,

shareholders could also download proxy forms A, B, and C from the Company's website.

- In the event that shareholders were unable to attend the AGM in person and would like to authorize an independent director to act as their proxy, IRPC provided a choice of four independent directors with their names on proxy forms enclosed with the 2020 AGM invitation letter. For the 2020 AGM, Mr. Nattachat Charuchinda, Ms. Siriwan Chierapong, Mr. Chakree Buranakanon, and Air Chief Marshal Boonsuib Prasit were chosen as independent directors with no vested interest in any of the AGM agenda items, posing no risks of a conflict of interest. Furthermore, with the invitation packet, the Company had enclosed other relevant documents, such as a location map, names and resumes of director nominees, the Company's independent director definition, and the Company's articles of association that applied to a shareholder meeting.
- The Company had also prepared duty stamps free of charge for shareholders' proxies to ensure the legality of their documents.

3. Consideration of Stakeholders' Roles

IRPC places a great deal of importance on the rights of all stakeholders throughout the entire supply chain. Its Corporate Governance Policy comprehends the protection of stakeholders' rights, the specific treatment of each group of stakeholders, and the promotion of the co-operation between the Company itself and its stakeholders. The policy provides guidelines by which the Board of Directors, executive officers, and company employees must abide. These guiding principles aim to be of the utmost benefit to shareholders, bring about prosperity, foster stability, and ensure sustainability.

3.1 Stakeholder Treatment

Shareholders and Investors

IRPC respects the fundamental rights of shareholders and treats all shareholders with equality in the aim to create satisfaction to the shareholders, such as granting the right to attend the Annual General Meeting (AGM) and the right to vote, propose the agenda item and nominate the Board of Directors for election, organize shareholders visiting activities, and let shareholders voice their opinions and suggestions. All shareholders

are provided contacting channels with IRPC via the Company's website www.irpc.co.th, ir@irpc.co.th, and cg@irpc.co.th. The Company also holds a quarterly press conference for analysts to disclose its operating results and joins the Opportunity Day, a project in collaboration with the Stock Exchange of Thailand to provide investors the better access to and opportunity to communicate with listed companies.

Customers/ Consumers

The Company commits to conducting its business with utmost honesty, integrity, and transparency. All customers are treated with equality, and all products delivered to the customers are of high standards and quality that exceeds their expectations. IRPC aims to develop new innovations in creating excellent and eco-friendly products with international standards. It also emphasizes on information technology system development to be efficient and fast to support various databases management, as well as having customer experience department to handle customer service on technical issues consulting and customer relationship building activities. The Company also provides a channel for every customer to express their opinions or suggestions for future development through satisfaction surveys in various topics.

In 2020, due to the COVID-19 epidemic crisis, IRPC conducted the following customer-related activities:

- Made amendments on the contract to be up-to-date and in line with the crisis situation arising to help alleviate any problems the customers might encounter.
- Cooperated with leading plastic packaging manufacturers/ distributors and King Mongkut Latkrabang's Office of Research and Innovation Management to donate negative pressure test cabinets to hospitals such as Police General Hospital, Priest Hospital, and Bangkok Metropolitan Administration (BMA) General Hospital to help medical personnel and healthcare professionals cope with COVID-19 screening more safely.

Partners, Competitors, and Creditors

IRPC operates on the foundation of morality and integrity, upholding fairness, honesty, and great concerns on social and environmental impacts its

business might cause, strictly following the principles of Good Corporate Governance. In order to foster good business practice culture, the Company continuously communicates and informs its performance with partners via various platforms such as No Gift Policy campaign, the Thai Private Sector Collective Action Coalition against Corruption (CAC-SME) project, Human Rights Policy announcement, as well as encouraging key partners to participate in various activities such as PTT Group CG Day.

Partners: Due to the spread of COVID-19, the Company facilitates its partners in order to reduce the risk of infection in accordance with social distancing measures, as well as actively monitoring and follow up on its business partners' situation to discuss and provide assistance in the following cases:

- In the event that the business partners needed to postpone the receipt of products, IRPC provided assistance by making partial payment for the products in advance.
- Changing payment methods for partners (e-Receipt, e-Tax Invoice) from actual visit to the Company to bank account transfer for convenience and risk reduction.
- IRPC and its employees made a donation to purchase consumer goods for construction workers of IRPC's contractors who were unable to continue their work at IRPC construction sites during the COVID-19 epidemic.

Competitors: IRPC's treatment of its competitors is in conformity with the international framework of free

competition and relevant competition laws. The Company competes fairly and never seeks a competitor's trade secrets through dishonest or improper means. It also never attempts to destroy a competitor's reputation through malicious accusations or attacks. Moreover, IRPC never agrees with a competitor or any person to circumvent or limit free competition.

Creditors: IRPC strictly complies with all obligations it has with accounts payable and financial institutions. The Company has never attempted to conceal facts or information that ought to be public knowledge in any manner that could cause damage to its creditor. IRPC has implemented many policies and guidelines that govern matters of creditors-especially the terms of guarantee, capital management, and defaults to prevent payment failures and breaches of contract. Nonetheless, in the event that the Company learns of its inability to fulfill any obligation, it will always notify its creditor quickly and work with the creditor to find a suitable solution. The Company is committed to maintaining a long-lasting relationship with all creditors.

Employees

A major contributing factor to the success of a company is its employees. With this understanding, IRPC is committed to creating a proper human resource management system with fair performance assessment. The IRPC work environment promotes career growth. In addition to providing education and development training, the Company also applies stringent international standards to its operations to ensure a safe work environment and support a good work culture and atmosphere. In addition, it regularly extends its "Care & Share" corporate social responsibility campaign to employees' families.



In the midst of the COVID-19 crisis in 2020, IRPC has taken measures to ensure its employees and their families' safety by establishing COVID-19 surveillance monitoring to effectively monitor and control the spread of COVID-19 in the work place. The company kept both its employees and the Board of Directors informed about the up-to-date COVID-19 outbreak situation and preventive plans. In addition, IRPC also increased more measurements regarding the employees' health care as follows:

- IRPC maximized and advanced its technology, equipment and IT system to ensure smooth operations throughout its business chain. This includes new technology such as teleconference system (MST).

- The company provided necessary protective equipment for all employees such as cloth face masks and alcohol gel, as well as a close monitor on the health and welfare status of its employees.
- IRPC introduced measures requiring employees to alternate between working from home and at the office to reduce the risk of infection. Thanks to the management system that IRPC put in place, the employees were able to continue their work.

Moreover, IRPC fully supports its employees' freedom of association. Employees of IRPC and the IRPC group have formed 8 executive and labor unions to ensure fairness and increase their bargaining power. The company allows and encourages union activities, providing union news distributes to every person within the organization via intranet portal.



IRPC participating in an audit by the Model Organization on Human Rights, Department of Rights and Liberties Protection, Ministry of Justice

Communities, Society, and the Environment

Per company policy, IRPC operates with due regard to corporate social, local communities, and environmental responsibility. The company always pays close attention to the safety and quality of life of people living in nearby communities, as well as society at large. In its daily operations, IRPC takes measures to either prevent or minimize its impacts on local communities and the environment. The company also repays society through numerous activities that foster mutual growth. (See the details of Driving business for sustainability on page 119)

Legal Compliance and Respect for Human Rights

Corporate Compliance Policy/Regulations

IRPC's Board of Directors place great importance

on compliance and therefore established Corporate Compliance department under the company's secretary, the President and CEO, within the supervision of the Corporate Governance Committee. The company's Corporate Compliance has been enacted since 2015 to uphold matters of compliance with laws, rules, and regulations. In 2020, the Board of Directors has approved the policy amendment to cover more important issues in accordance with international standards for better efficiency in compliance.

Intellectual Property Policy

The company's policies and guidelines for the ethical use of its assets, information, technology, and intellectual property, as well as their care, appear in the Corporate Governance handbook. In terms of corporate compliance, IRPC requires all parties involved

to abide by relevant laws and regulations on company information technology (IT). IRPC does not tolerate any copyright, patent, or trademark violation. The Company controls and limits access to information and computer applications based on the need of each position. It also monitors compliance with the law and its IT and communications policies. The company employs

various means of data security. For instance, the password used to access company data is confidential and cannot be revealed without expressed permission, which allows its anti-intellectual-property-violation measures to function efficiently and adequately.



Metropolitan Electricity Authority visiting IRPC to study the company's Human Rights activities

Human Rights Policy

The Human Rights Policy of IRPC Public Company Limited and the IRPC Group came into effect in 2017. It has since been mandatory for IRPC Board of Directors, executive officers, and employees to adhere to its principles in their everyday conduct. The policy comprehends all groups of known stakeholders, such as employees, communities, society, business partners, and customers within the IRPC Group supply chain. It even covers matters of environmental protection. The policy ensures that IRPC's businesses will always operate with prudence and great care without violating or impacting the rights of humankind, whether directly or indirectly. IRPC will also never encourage or be involved in any instance of human rights violation.

Conflicts or Disputes with Stakeholders

Please find the details of important legal disputes on 2020 Financial Statements Annex, item 40.

4. Disclosure and Transparency

Disclosure

It is mandatory for IRPC to disclose any information that may affect investors' decisions or shareholders' rights and benefits. The information unveiled must be correct and sufficient. The disclosure itself must be on time and conform to disclosure guidelines for listed companies of the Stock Exchange of Thailand

(SET). Any information deemed to affect investment decisions will first become available via the SET Portal before being disclosed to a specific person or the general public. Furthermore, IRPC cannot divulge trade secrets, incorrect information, estimates, speculations, or promotional information that is unnecessary for investment decisions.

IRPC discloses all information of this nature on its website (www.irpc.co.th), under the Investor Relations tab and via the SET Portal, offering all stakeholders equality of access. Its information disclosure activities in 2020 are summarized below.

- (1) The Company submitted financial reports to the Securities and Exchange Commission (SEC) and the SET on time. The auditor expressed his opinion unconditionally on all entries.
- (2) The Company thoroughly disclosed information in the annual registration statement (56-1), the annual report (56-2), and on its website. The information released included financial statements, the Corporate Governance Policy, the Code of Ethics, the Corporate Social Responsibility Policy, details of the annual general meeting of shareholders, management structure, and the list of majority shareholders. The Company also

communicated all of this via the SET Portal, print media, online media, and many other channels. Investors may learn more about IRPC via its website, www.irpc.co.th, or contact Investor Relations via one of the following channels:

E-mail: ir@irpc.co.th

Telephone: 0-2765-7380

Fax: 0-2765-7379

(3) The Company's remuneration criteria for its directors and executive officers were specified clearly in the annual report.

(4) The Company also disclosed directors' and executive officers' shareholding information per company policy. This disclosure conformed to regulations of the SEC and of the SET.

(5) The SEC and the SET never asked and has never asked the Company to correct any of its financial statements.

(6) The Company's current auditor was appointed by shareholders at the 2020 Annual General Meeting of Shareholders. This licensed auditor possessed none of the prohibitions that the SET had announced. His audit and non-audit fees were presented to and approved by shareholders at the meeting as well.

(7) The Company's financial statement was certified unconditionally by the auditor.

(8) Information about the Company's directors and executive officers including their names, current position(s), education, experience, ownership of shares in the Company, photograph, directorship at other listed companies, and inauguration date was made available on the Company's website.

(9) The company published the Corporate Sustainability Report 2020, detailing its management directions and its economic, social, and environmental performance. The Corporate Sustainability Report was delivered to shareholders, along with the Annual Report, and made available on the Company's website.

(10) The Company also presented a Communication on Progress (COP) report to the UN Global Compact (UNGC). IRPC has been a member of the UNGC since 2011 and has an obligation to advance towards the established goals and report its progress. Since 2014 the Company has attained the highest reporting level known as GC Advanced. The report has been made available on the Company's website. An electronic copy was submitted to UNGC via www.unglobalcompact.org.

(11) The Company communicated with stakeholders via print media, radio, television, and other public relations channels.



Internal Data Protection

IRPC pays close attention to the internal data use of both IRPC and its subsidiaries, with determination of equal and fair treatment to all shareholders. In 2020, the Company has set a policy regarding Insider Trading prevention and Blackout Period in order to protect non-public price sensitive information (Inside information) from leaking, and to prevent directors, executives, employees, and related persons to reveal any confidential information to the SET or the public for personal interest, either directly or indirectly. The guidelines are defined in brief as follows:

(1) No directors, executives (according to the SEC definition), employees in the departments related to internal information (accounting, finance, company secretary, Corporate Audit Office, Investor Relations, Corporate Strategic Investment, Risk Management, and Corporate Affairs Office) are allowed to trade IRPC's securities at least 30 days prior to the disclosure of the quarterly and annual financial statements, notification to the SET, public disclosure and within 48 hours after the disclosure

of the said financial statements. The company secretary is responsible for the announcement of the Blackout Period for securities trading to IRPC's personnel in advance.

- (2) Directors and executives of the company who intend to buy and sell IRPC's securities must notify the company secretary at least 1 day in advance before trading. In the event that the company secretary wishes to trade the company's securities, he or she must notify the Chairman of the Board or CEO and President.
- (3) Directors, executives (according to the SEC definition) and the company's auditors must prepare and disclose reports on changes in securities holding of their spouse and under-age children, in accordance with the rules and

procedures pre-scribed by the SEC within 3 business days from the date of purchase, sale, transfer or acceptance of transfer of securities

- (4) Directors and executives (according to the SEC Office definition) must report on any changes of their interests and profile within 7 business days from the date of the change, according to the regulations for reporting on interests. The report shall be submitted to company secretary to pass on to the Chairman of the Board and the Chairman of the Audit Committee.

Media and Investor Relations

IRPC prepares annual strategic and communication plans to manage its information disclosure to each group of stakeholders, adhering to principles of good corporate governance behind fair disclosure of information.



IRPC held a quarterly analyst meeting.

Overview of Disclosure Activities for Investors and Shareholders in 2020

2020 Investor Relations Activities	Times
10 Roadshows to meet investors, categorized as below:	
- International Roadshow	3
- Domestic Roadshow	7
Quarterly Analyst Conference Calls	4
Quarterly Analyst Meetings	4
Company Visit (Appointment)	15
4 Opportunity Day Activities	4
- At the Stock Exchange of Thailand (Quarterly)	

Overview of Interactions with the Media in 2020

Activities	Times
1. Press Conferences/ Interviews	16
2. Press/ Photo Releases	45
3. Print Media/ TV/ Radio	57
4. Website	50

Whistleblowing, Access to Information, and Whistleblower Protection

IRPC Board of Directors has established the Whistleblowing Policy, providing whistleblowing channels and protection for internal and external whistleblowers. The Company accepts submissions about any activity that violates the law or code of conduct, or any corruptive behavior or inappropriate conduct of any person at any corporate echelon including directors, executive officers, and employees of IRPC and the IRPC Group, as well as any party involved in IRPC's business. The policy also clearly specifies the ensuing investigative procedures to ensure impartiality and transparency. All whistleblowers and witnesses will be offered protection and non-retaliation.

Whistleblowing Channels



E-mail: auditor@irpc.co.th
Mail: Chairman of the Audit Committee
IRPC Public Company Limited

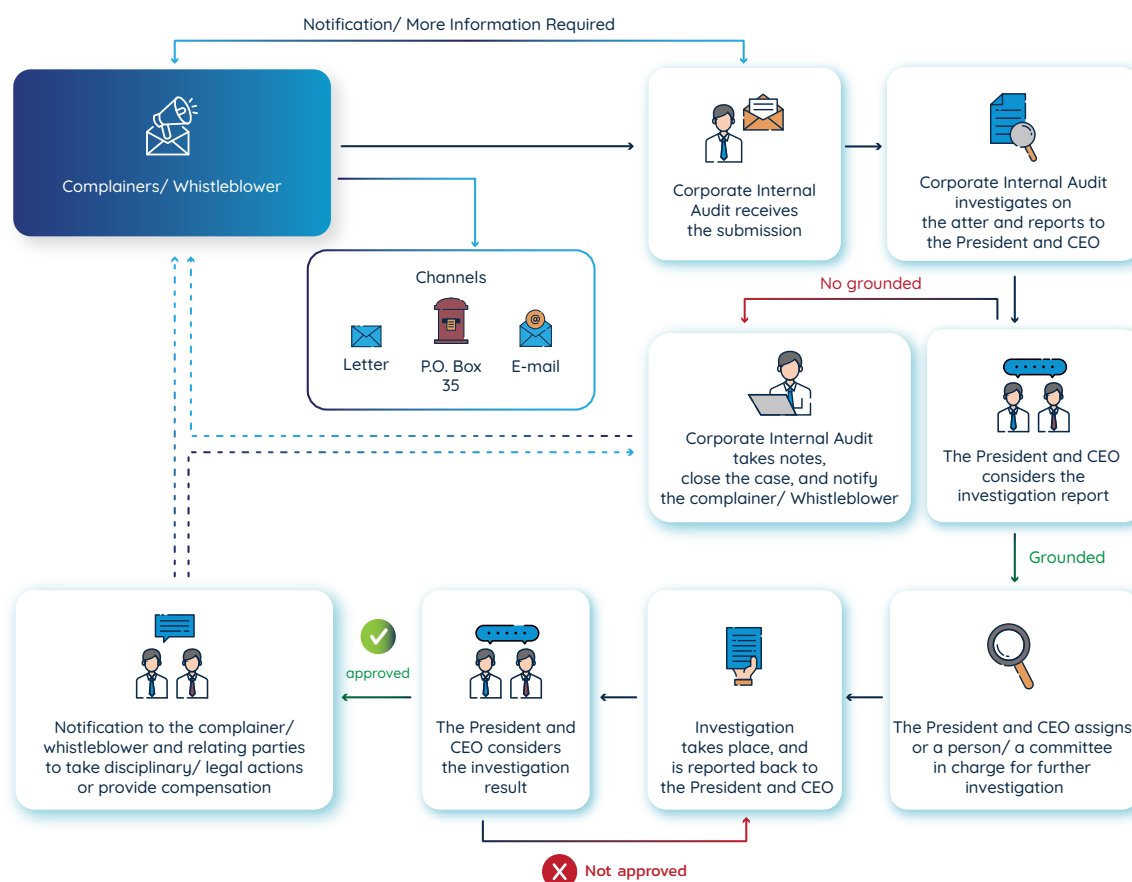
555/2 Energy Complex, Building B, Floor 6
Vibhavadi Rangsit Rd., Chatuchak, Chatuchak,
Bangkok 10900



P.O. Box: P.O. Box 35, Sun Tower Post Office,
Bangkok 10900

The investigative procedure begins with the Office of Corporate Internal Audit. This department is directly responsible for supervising the investigation and monitoring its progress. It also prepares a detailed report of all known wrongdoings or violations of the Code of Conduct to be submitted to the Audit Committee and the Board of Directors monthly and quarterly. In practice, Corporate Internal Audit has the power to determine whether each whistleblowing submission has grounds. If the submission is of sound reason, Corporate Internal Audit will set up an investigation panel. If the accused is found guilty, they will be subject to the corresponding disciplinary action. All whistleblowers and witnesses will be afforded protection.

Complaints and Whistleblowing Process



In 2020, the Office of Corporate Internal Audit received the following submissions via the following channels:

Time	Channels			Types of Submission			
	President and Chief Executive Officer	Auditor @irpc.co.th	P.O. Box 35 SunTower Post Office	Employee's Conduct	Operation	Suggestions	Corruption
Total	1	-	30	6	15	10	-

5. Board Duties and Responsibilities

The Board of Directors plays a vital role in governance for the benefit of IRPC. Members of the board have a duty to shareholders and act independently from the executive branch of IRPC. They strive to fulfill their missions, roles, duties, and responsibilities and to protect the interests of shareholders and stakeholders. The Board of Directors determines which business directions and strategies the Company should pursue based on their suitability and effectiveness. In

addition, the board ensures the transparency and sustainable growth of IRPC's business.

The Board of Directors relies on 8 principles from the Corporate Governance Code (CG Code) for Listed Companies 2017 issued by the Securities and Exchange Commission (SET) as guidance for IRPC's board duties and responsibilities practice. The details of these principles appear on Corporate Governance Structure and Important Information about the Board of Directors, Sub-committees, and Executives on pages 188-202.

Board Committees and Sub-Committees Assessment, Orientation, and Development

The Board of Directors is at the heart of good corporate governance. In addition to having the Audit Committee, which is a requirement of the Stock Exchange of Thailand (SET), the Board of Directors has to establish other sub-committees for the sake of good corporate governance and the Board of Directors' performance assessment. The 4 committees established are (1) the Audit Committee (2) the Corporate Governance Committee (3) the Nomination and Remuneration Committee and (3) the Risk Management Committee. The members of these sub-committees are equipped with expertise suitable for the assigned tasks and play a role in fine-tuning board performance. More details of IRPC's committees can be found in the "Corporate Governance Structure and Important Information about the Board of Directors, Sub-committees, and Executives" on pages 194-202.

2020 Board Performance Assessment

• Board Assessment

IRPC's Board of Directors requires an annual performance assessment to be conducted for the board to review their performance, problems and obstacles during the year. In 2020, assessment forms were prepared according to the standards of Good Corporate Governance of the Stock Exchange of Thailand and the ASEAN CG Scorecard. The 5 sets of assessment forms are as follows: (1) Self-assessment form of the entire board of directors (2) Self-assessment form of individual directors (3) Other director's performance assessment form (2-person cross assessment) (4) Four Sub-committees Performance assessment forms, namely the Audit Committee, Nomination and Remuneration Committee Good Corporate Governance Committee and the Risk Management Committee And (5) The Board of Directors' meeting evaluation. All these assessments serve as a tool for directors to jointly consider their performance, brainstorm on the problems solving, which will ultimately lead to improvement and development.

2020 Performance Assessment of Board of Directors and Sub-Committee

Assessment Topics	2020 Assessment Score
1) Board of Directors' Performance	96.68%
2) Board of Directors' Individual Performance (self-assessment)	97.21%
3) Other Directors' Performance (cross-assessment)	98.01%
4) Sub-Committees' Performance:	
4.1) The Risk Management Committee	99.19%
4.2) The Nomination and Remuneration Committee	99.79%
4.3) The Corporate Governance Committee	91.46%
4.4) The Audit Committee	
4.4.1) The Chairman's Assessment on the Committee	93.75%
4.4.2) The Audit Committee's Performance	98.75%
4.4.3) The Committee's Individual Performance	98.06%
5) Board Meeting Effectiveness (Evaluation of Company's Secretary)	95.54%

• **Performance Review of the President and CEO**

The Board of Directors has stipulated that the performance review of IRPC's president and CEO shall be conducted annually by the Nomination and Remuneration Committee. The board then determines the remuneration of the president and CEO based on the results of this review; however, these results are considered undisclosable private information. The criteria are based on the president's job components and goals. They reflect the president's performance in a tangible, transparent, fair, and suitable manner. The review is divided into two parts:

Part 1: Four Corporate KPIs

1. Financial Perspective
2. Stakeholder Perspective
3. Internal Process Perspective
4. Learning & Growth Perspective

Part 2: Three Sustainable Growth Factors

1. Leadership
2. Board of Directors' Assessment
3. Outstanding Management and Crisis Management

The president and CEO's annual salary adjustment and bonus are dependent on the results of this performance review and are subject to the approval of the Board of Directors.

In 2020, the Board of Directors approved the president's performance review criteria at Board Meeting No. 2/2020, held on February 12, 2020. In addition to challenging goals, these criteria comprehend financial and non-financial key performance indicators per short and long-term goals of the strategic plan and the company's vision; corporate responsibilities for communities, society, and the environment; and the management during crisis. Having acknowledged these criteria, the president steered IRPC towards the established goals. He demonstrated his ability to lead; solve problems affecting IRPC and stakeholders quickly, correctly, and successfully.

Moreover, every director completed an assessment form that evaluated the president and CEO's performance, ensuring transparency and fairness. Their participation reflected IRPC's continued change for the better.

The president and CEO reportedly excelled at both parts of the review. The remuneration of the president and CEO is comparable to that of the others within the same industry or similar industries. The president and CEO's remuneration is part of the executive remuneration budget per criteria of the Securities and Exchange Commission.

Director Orientation

The Company required all newly appointed directors in 2020 to attend an orientation session before they could participate in their first board meeting. The session allowed these new directors to acquaint themselves with the Company's business nature and their duties and responsibilities, which had been prescribed by law and international principles of good corporate governance. The president and CEO himself provided the new directors with an introductory report, an organizational overview, pertinent rules and regulations, and director's handbooks. In 2020, 1 newly appointed director Mr. Chawalit Tippawanich, President and CEO attended the orientation. The Company gave an overview of the Company, including its vision, policies, organizational structure, business overview, performance, and other pertinent information. The Company provided new directors with a comprehensive range of relevant documents, including director's handbooks, Corporate Governance Handbook, Code of Conduct, company registration certificate, company objectives, articles of associate, names of board members, duties and responsibilities of committees, AGM minutes and annual reports of the Board of Directors.

Development of Directors and Executive Officers

IRPC encourages its directors and executive officers to partake in training programs that will benefit their role, business management, and knowledge of the industry. Every director has received the fundamental Training (for further details please refer to Directors' Biography on page 28). Moreover, the Company secretary regularly works with all directors to find time for them to attend new training sessions at the Thai Institute of Directors (IOD). In 2020, IRPC's directors and executives participated in a seminar entitled "The Board of Directors' Duties on IT Governance to Maximize the Organization's Efficiency".

Nomination and Appointment of Directors and the President

Board policy mandates that members of the Board of Directors must come from a diverse range of backgrounds. Priority is given to needed competencies that will fulfill the composition of the board. Qualifications, experience, and expertise are also considered; however, gender, religion, ethnicity, and nationality play no role in the process. Further details on this matter appear under "Composition and Qualifications of the Board" on page 190.

As for the nomination of a director candidate, IRPC will consider suitable and deserving individuals. Both majority and minority shareholders, in addition to the Nomination and Remuneration Committee, have the right to propose director candidates. All nominations must be approved by the Nomination and Remuneration Committee according to the established criteria before being presented to either the board or the shareholders for the final approval (whichever the case may be).

1. Directors Nomination

Further details appear under "Director Nomination process" page 198 and "Director Appointment" page 191.

• Independent Directors

Further details about the company's independent directors and their duties and responsibilities appear under "Independent Directors" on page 190-191.

• Distinct Roles of the President and the Chairman

Although the Public Limited Company Act allows one person from holding the offices of the president and CEO and the chairman of the board simultaneously, having the top executive officer double as the board's leader would create a conflict of interest. The board would be unable to independently determine the executive branch's directions and policies and monitor its conduct. Information reported to the board could be selective or concealed. The president and CEO and chairman could also influence the board to rule in favor of management. To ensure good corporate governance and separation of powers, the Board of Directors of IRPC Public Company Limited has mandated that its

chairman and the president and CEO of the company cannot be the same person, and their roles are separate and distinct. Further details about the duties and responsibilities of the chairman and the president appear under "Authority of the Chairman" and "Duties and Responsibilities of the President and Chief Executive Officer" on page 194 and 204 respectively.

2. President and CEO Nomination and Succession Planning

The Board of Directors has tasked the Nomination and Remuneration Committee with nominating a qualified and capable individual for the office of the president. The nominee is presented to the board for appointment. The president and CEO of the company also serves as a member of the board. The nomination and appointment process conform with the company's articles of association and all legal requirements. The candidate must possess the necessary experience and a profound understanding of the petroleum and petrochemical sector, in addition to a good reputation, leadership, and a track record of corporate governance compliance. Candidates for senior executive vice president offices must also similarly pass the consideration of the Nomination and Remuneration Committee and gain approval from the Board of Directors

President and CEO Succession Planning: According to IRPC's Succession Plan Management, IRPC senior executive vice presidents are selected to undergo the IRPC Group's executive development program. After completion, they will be subject to a leadership assessment by a leading consultancy. The company will use the results of this assessment to further develop their potential. When an opportunity arises, one of these leaders will be nominated and appointed per the established process.

3. Executive Succession Planning and Development

The Board of Directors charges the Nomination and Remuneration Committee with succession planning for N-1 and N-2 senior executives, preparing candidates for pivotal management positions efficiently. Succession planning also helps manage risks, ensures business continuity, and encourages mutual growth for executives and IRPC itself.



Top management signed the 2020 KPI Signing Ceremony to create consensus among executives and set them as operational goals — +

To ensure business continuity, IRPC has a systematic executive succession plan in place, the progress of which is periodically reported to the Nomination and Remuneration Committee. It assesses and develops the capabilities of senior executives that are necessary for the Company to achieve its objectives and strategic goals. The process is as follows:

- 1) Succession Planning
- 2) Criticality of Target Roles
- 3) Prioritization of Target Group
- 4) Succession Readiness
- 5) Successor Candidate

Governance of Subsidiaries and Joint Ventures

Organizational Structure

The Board of Directors ensures that IRPC's organizational structure is adequately efficient and suitable for governance under the leadership of the president and CEO. In 2020 the board approved the restructuring of IRPC, which took into account the present strategic plan and goals for future growth achieved through new business opportunities, mergers and acquisitions, and the creation of long-term value-added. Details on the matter appear in "Organizational Structure" on page 39.

Governance Mechanisms

In addition to the president and CEO and other senior executive officers, the Board of Directors oversees the management of subsidiaries, joint ventures, and affiliates through representatives whom they have appointed to serve as directors or executives of these companies. (Further details on this subject appear in "Business Structure and Shareholding" on page 60). The decisions on significant investments and business developments that these representatives make require the approval of the Investment Board, the Management Board, or the Board of Directors, whichever the case may be. They must also report the progress of these projects to the Company periodically.

Outside Interests Policy

The Board of Directors has established these rules on outside interests, which apply to the president and CEO, other executive officers, and every employee of the Company. In addition to clarity, these rules also ensure good corporate governance, compliance with international standards, and conformity to IRPC's business nature and the practice of its majority shareholder. The rules are as follows:

1. In the event that the president and CEO has been assigned a position external to the Company's affairs by royal command or lawful order of the

cabinet, the president shall inform the board as soon as the command or order was received, whichever the case may be.

2. In the event that the president and CEO have been requested to serve as a director, committee member, specialist, expert, consultant, or any other position external to the Company's affairs by a government agency, state enterprise, independent organization, or state-owned institution of education, the president shall seek approval from the board first.
3. In the event that the president and CEO, and executive officer from the executive vice president level upward has been requested to serve as a director, committee member, specialist, expert, consultant, or any other position at a company or juristic entity external to the Company's affairs and outside the provision of Rule 2, he or she shall seek approval from the board first. For employees from the executive vice president and manager level downwards, permission must be obtained from the president and CEO instead.
4. For all executive officers and employees whose outside interests fall under the provision of Rule 1 or 2, they must inform or ask for permission from the president and CEO before accepting the offer, whichever the case may be.
5. The appointment of a director to serve in a subsidiary or joint venture, according to the shareholding ratio or agreement made between shareholders.

Insider Information

The Board of Directors has introduced guidelines on the disclosure of information, confidentiality, information technology, and communication in the Corporate Governance Handbook. Directors, executive officers, and employees alike are to exercise caution when dealing with private information and providing information to an outsider to safeguard IRPC's trade secrets. Information is categorized according to its level of confidentiality; access to information is limited. Company policy prohibits the use of insider information, that which has yet to be revealed to the public, for the benefit of one's own or of another person, especially

for IRPC securities trading. Rules governing insider information are part of the Compliance Policy, which was introduced in 2016 and revised in 2019.

Code of Conduct

IRPC's good corporate governance best practices guide its directors, executives, and employees. These appear in the Corporate Governance handbook. Its contents include human rights; treatment of employees, society, communities, the environment; occupational health and safety; giving or accept assets or other benefits in a way that may influence one's decision; conflicts of interest in a transaction; trading company securities; insider information; compliance; the use and care of assets, information, information technology, and intellectual property of IRPC; treatment of customers; product quality; marketing communication; treatment of contractual partners (business partners and creditors); and treatment of competitors.

Conflict of Interest

IRPC requires that its directors, executives, and employees, as well as those of its subsidiaries, joint ventures, and companies in which IRPC has a controlling stake, disclose any potential conflict of interest in any transaction of IRPC or the IRPC Group, using the specified method. Disclosures enhance operational efficiency, governance and management excellence, ethics, freedom from corruption, transparency, and accountability.

Conflicts of Interest Report

In addition to disclosing its directors' and executives' conflicts of interest according to the regulations of the Securities and Exchange Commission, IRPC also mandates that all IRPC-Group executive officers and employees must report all of their (potential) conflicts of interest with the Company to the Corporate Governance Committee. Reporting is done via online system which has been available for 6 years now (since 2015), raising anti-corruption and transparency awareness within the organization.

In 2020, the Company saw a 100-percent adoption of the online reporting system from executives and employees across all levels. Failing to do so would have resulted in disciplinary action per Section 8 of

the Workplace Policy, which prohibits workers from neglecting or not complying with the Company's lawful order or assignment or concealing a fact.

Reporting Conflicts of Interest of Directors, Executives, and Related Persons

Every director submits a conflict of interest report, which the board uses as the basis for the supervision of its members' conflicts of interest. Every senior executive officer prepares a similar report annually. The Company secretary files these away after presenting their copies to the chairman of the board and the chairman of the Audit Committee, who use them to oversee matters of conflicts of interest. Whenever there is a position change or a new director, IRPC will present a report of the change to the Office of the Securities and Exchange Commission, keeping its directors' information up to date.

Reporting Securities Holding

To oversee insider trading, it is mandatory for board members and executive officers, including their legal spouse, cohabiting partners, and underage children, to report any changes in their holding of IRPC securities to the Company, the Stock Exchange of Thailand, and the Office of the Securities and Exchange Commission-according to Section 59 of the Securities and Exchange Act B.E. 2535 and any ensuing amendments-within 3 business days from the date of the transaction. Moreover, company policy obliges board members and executives to report any changes (disclosure/ report/ buying/ selling) in their holding of IRPC securities to the board at the monthly board meeting. In fact, the report is an integral part of every board meeting's agenda.

In 2020 board members collectively held less than 25% of the Company's issued shares, complying with regulations of the Stock Exchange of Thailand.

The Company also has a blackout period 45 days before the release of the financial statement and the 2 ensuing days during which IRPC stock cannot be traded. This blackout period enables board members, executives, and any employees with insider information to thoroughly and strictly abide by pertinent regulations.

Moreover, the Company has requested that all board members and executive officers inform the Company secretary of their intent to trade IRPC securities at least 1 business day before the date of the transaction.

Connected Transactions

• Related/ Connected Transactions Policy

The IRPC Group operates a complete range of petrochemical and refinery businesses, sharing the sector with fellow companies within the PTT Group. As a result, transactions between IRPC and other PTT Group companies are commonplace. These transactions include the exchange of crude oil and petrochemical products, related services, and other activities that support each other's everyday operations. The prices and terms and conditions of these transactions are no different from those agreed upon with companies outside the PTT Group with no additional benefits. IRPC considers every connected transaction carefully, rationally, and independently in its own best interest.

The Internal Audit Office presented "Diamond Award 2020" to departments with excellent internal control, transparency, and determination to efficiently achieve operational goals.



• **Measures for Related/ Connected Transactions**

The Company complies with the regulations of the Securities and Exchange Commission and Stock Exchange of Thailand regarding connected transactions. The Board of Directors appropriately considered the items that may have conflicts of interest to ensure that the transaction is fair, transparent, and reasonable. The directors, employees or any person with conflicts of interest are not allowed to attend the meeting or vote on that agenda. In addition, the Audit Committee is also responsible for the review and audit of connected transactions made between the Company, its subsidiaries, and related persons or companies on a quarterly basis. The objectives are to eliminate conflicts of interest that might occur and ensure the best interests of the Company.

• **Future Connected Transactions Policy**

IRPC's future connected transactions will be a normal business transaction, which the Company pays close consideration to the suitability of conditions and fair prices. This is to enable shareholders and all stakeholders to receive fair and

equitable treatment in accordance with the Good Corporate Governance Policy, strictly complying with the regulations of the Securities and Exchange Commission and the Stock Exchange of Thailand on connected transactions.

Appointment and Remuneration of the Auditor

IRPC Public Company Limited

The Audit Committee nominated Deloitte Touche Tohmatsu Jaiyos Audit Company Limited (Deloitte) as the 2020 auditor for IRPC. The nomination was approved at the 2020 Annual General Meeting of Shareholders. Deloitte is an independent auditor with a long-standing reputation. It has no relations and/or vested interest in IRPC, its subsidiaries, directors, executives, majority shareholder, or related persons. Its fees were as follows:

The audit fee for 2020 was 3,100,000 baht, which was the same rate for 2018. This fee, however, did not include other accrued expenses, such as traveling allowance, that did not exceed 120,000 baht, which were billed to IRPC according to customary practice.

Fee (Unit: Baht)	2019 (Auditor: Deloitte)	2020 (Auditor: Deloitte)
Audit Fee	3,100,000	3,100,000
Non-audit fee	2,950,000 Fees for 1. Verification of BOI privileges 2. Financial consultancy 3. Development and installation of the Continuous Control Monitoring System (CCMS)	1,223,085 Fees for 1. Verification of BOI privileges 2. Remaining balance from 2018 for financial consultancy and CCMS

Subsidiaries and Joint Ventures

Deloitte also proposed another audit fee of 1,1750,000 baht in 2020 for five IRPC subsidiaries and one IRPC joint venture.

Other Corporate Governance Activities

The Board of Directors ensures that IRPC is a good corporate citizen, serving as a role model for

stakeholders throughout the supply chain and encouraging them to adopt and uphold similar principles. To this end, the board has issued the Good Corporate Citizenship Policy, which was developed in conformity with the UN Global Compact, for IRPC and the IRPC Group. The policy has been available for retrieval on the Company's website since 2017 as follows:

Human Rights

- IRPC's treatment of its employees and related parties in the supply chain, as well as the surrounding communities, conform to international principles of human rights and human rights laws. The Company affords freedom and equality to individuals, which are guaranteed and protected by Thai and international laws. It never violates or takes part in the violation of human rights, whether directly or indirectly. IRPC respects human dignity and provides equal opportunity without any form of discrimination based on ethnicity, religion, gender, skin color, belief, disability, or social status.
- The Board of Directors has established Human Rights Policy for IRPC group, which has been disclosed on the Company's website since 2017 to ensure that the Company's business operations are free from human rights violation in all aspects.
- IRPC representatives have continuously attended human-rights seminars and activities to ensure their thorough understanding before passing on their knowledge to IRPC employees, partners, and stakeholders. In doing so, the Company has ensured widespread and tangible applications and results. In 2020, IRPC's employees attended a lecture on "Human Rights and Business: The Twins" by Dr. Seree Nonthasoot, a member of the Committee on Economic, Social and Cultural Rights (CESCR) and former representative of Thailand in the International Commission of ASEAN Government.
- Thanks to its earnest and regular activities, IRPC awarded the title of the Private Sector Winner of the Human Rights Role Model Organization for the second consecutive year.



Course 1: Global Trends: "Direction of Thailand's and the World Economy after COVID-19" by Prof. Dr. Suchatvee Suwansawat, professor of Civil Engineering at King Mongkut's Institute of Technology Ladkrabang (KMUTL) and President of Council of Engineers.



Course 2: Human Rights: "Human Rights and Business: Gender Rights and Equality" by Dr. Seree Nonthasoot, Deputy Managing Director of Institute of Research and Development for Public Enterprises (IRPD) and actress Ms. Treechada Petcharat.



Course 3: Climate Change: "Global Climate Change and Impact from Case Study" by Dr. Wijarn Simachaya, Director of the Thai Environment Institute (TEI) and Mr. Phatharaphon Maneeon, a wildlife veterinarian at the Department of National Parks, Wildlife and Plant Conservation.



Course 4: ESG: "ESG and Business in the New Normal and Product Research and Development for Society and Environment" by Mr. Wanat Pientham, Director of Thaipat Institute, Dr. Oraphan Saengsawang, Strategy Management and Innovation Research Division and Ms. Bandit Wachiraprasakul, Petrochemical Business Market Development Division, IRPC Public Company Limited.



Course 5: Anti-Corruption: "ISO 37001 Anti-bribery Management System Standard and Corruption Case Study" by Ms. Peangpanor Bunklam, Senior Executive Vice President, Law Office of PTT Public Company Limited, Ms. Attharaporn Krongyut and Mr. Witcha Phichainarong, Academic of Operational Standards, ISO Standards.



Course 6: Ethics: "Happy Workplace: The Organization of Happiness" by Phra Maha Sompong Tan Putto and Pra Ajahn Dr. Sompong Ratanwaso.

Labor

- The Company respects its employees' fundamental rights and personal freedom, which are guaranteed by Thai labor laws and conventions of the International Labor Organizations. Its treatment of employees conforms to labor laws. It encourages employees to exercise their freedom of association per labor relations law and complies with relevant state regulations. IRPC never uses its power to coerce employees to enter into an agreement that deprives them of their fundamental labor rights, as well as never engages in the use of illegal labor. Moreover, the Company complies with the Convention on the Elimination of All Forms of Discrimination against Women and UNICEF's Children's Rights and Business Principles. Furthermore, employment at IRPC is free from discrimination based on ethnicity, religion, gender, or skin color. The Company promotes equal opportunity and decent work with rightful liberty and human dignity.

Environment

- Through the Company's environmental protection measures and guidelines, IRPC expresses its commitment to prevent any environmental impact that its operations may cause. The Company conducts an environmental impact assessment before investing in a project or business. It employs applicable technologies to bolster its environmental protection measures and methods. It also encourages the development of eco-friendly innovations and

technologies. IRPC always promotes an awareness of environmental responsibility and occupational health and safety among its employees and related parties.

Anti-Corruption Activities

- In the fight against corruption, the Board of Directors has introduced the following policies: the Anti-corruption Policy, the Anti-bribery Policy, and the No Gift Policy. These policies apply to every person at every level of IRPC and the IRPC Group. Training and seasonal campaigning are used to raise awareness. These policies are publicly available on the Company's website and via other communication channels. Additionally, the Board of Directors endeavors to expand the IRPC anti-corruption network to include stake holders, such as other IRPC Group companies, joint-venture partners, and contractors. The Company's anti-corruption practices have been disclosed to all of its partners. Many of these activities have been going on since 2016 until 2020.
- The Audit Committee includes corruption risk management and assessment on Corporate Internal Audit's agenda. The committee also requires corruption risks to be controlled, monitored, assessed, and reported to the board continuously.
- IRPC actively promotes raises awareness of its employees towards anti-corruption concept, in

accordance with the Board of Directors' policy. The effort is to raise the Company's standards and become an organization with thorough transparency in combating all forms of corruption. In doing so, IRPC organized a lecture on Anti Corruption, honored by PTT Group's executive Miss Peangpanor Bunklum, Senior Executive Vice President, Law Office, PTT Public Company Limited. With her expertise as a professional sphere in-laws and regulations, Miss Peangpanor conducted a lecture on the topic of "Actual Cases of Corruption", in order and raise awareness on anti-corruption policy or the benefit of the organization. Additionally, lecturers from the Thai Industrial Standards Institute (TISI) also lectured about Anti-bribery Management System ISO 370001, a standard management system of bribery prevention which helps gain more confidence from the Company's management team, as well as shareholders and all stakeholders, making sure that the Company's operation is in accordance with Corporate Governance Policy with no corruption.

Digital

- IRPC aims to become a digital company, with a clearly established digital department structure to implement technology as the primary driving force in business operations, adding more value and reducing cost for more competitiveness. The digital department improves work efficiency by reducing work processes and equips its company with technology that brings about smooth, quick and accurate business operations in this digital age. Moreover, the digital department also contributes in development of employees' potential for Business intelligence Analytics, Data Science and Data Engineer, allowing the company to grow any overcome any obstacles by analyzing business data using Big Data and Machine Learning technology under the management framework according to Data Governance principles. Last but not least, the technology is also applied to work-from-home in emergency situation effectively, allowing the business to continue to operate continuously at all times. In terms of infrastructure, the Company places great emphasis on cyber

security, putting the best efforts into preventing risks from computer crime and other cyber threats. See the Risk Management on page 109 for more details.

Corporate Compliance

Compliance is vital to IRPC, because the Company believes that compliance can foster concrete sustainable development. Therefore, IRPC focuses on communicating to its employees in all departments about the importance of the Corporate Compliance or the Corporate Compliance Framework suitable for the nature of the Company's business and comparable to international practices. With a focus on compliance effectiveness, the framework has created the three lines of defense as follows:

- All operative functions within the Company (except Corporate Internal Audit and Corporate Compliance) are the first line of defense. They are responsible for the compliance of their own tasks and projects, including Corporate Compliance Risk Management.
- The second line of defense refers to all central assurance functions. Their three roles are as follows: (1) to provide an effective compliance management system, including support for compliance management self-assessment and compliance risk assessment; (2) to ensure compliance through education, proactive campaigns, and advice; and (3) to oversee correction and prevention of repeated offenses.
- Corporate Internal Audit serves as the third line of defense. It reviews the effectiveness of the first and second lines independently, as well as collaborates with an independent auditor.

In 2020, the Board of Directors has approved the Compliance Roadmap as a part of the Corporate Strategic Plan (2020 BOD-STs), aiming to be an organization with international standards and Corporate Compliance DNA. The Company's Corporate Compliance mission has been carried out with an international standard and good governance, which can be summarized as follows:

1. Compliance Policy, Process, and Procedure

- In 2020, the Board of Directors has approved the revised version of "IRPC and IRPC Group Compliance". The amended policy will better serve the Company's STS strategic plans regarding short-term and long-term operations.
- The E-compliance Library has been developed to host a wide range of compliance-related information from every operation within IRPC. Its creation supports the IRPC 4.0 Policy and facilitates the corporate compliance self-assessment by providing correct and accurate information. The library also hastens the preparation of reports per the established framework for the Corporate Governance Committee and the Risk Management Committee
- The Corporate Compliance handbook has been prepared to disseminate information to IRPC's personnel such as the Corporate Compliance News via intranet network. The handbook is published on the Corporate Compliance Webpage, easily accessible to all employees.

2. Compliance Communication & Information Dissemination & Compliance Advice

- Corporate Compliance Training became mandatory and registered as one of Organization Knowledge

Training Programs. In 2020, newly hired employees underwent a face-to-face with social distancing practice and online-training lecture on "Compliance & Governance of IRPC." Meanwhile, mid-level executives were subject to an annual training program entitled "Corporate Compliance Overview" for the second year. The training augmented their understanding of the Corporate Compliance Policy and the contents of the Code of Conduct manual.

- IRPC developed Corporate Compliance News PR channel to continuously communicate with its employees on the subject via E-mail and E-magazine in the forms of the newsletter (CC News) and a GRC article in the intranet magazine named I-Oon. Within the Corporate Compliance Framework, these forms of internal communications provide employees with pertinent knowledge, information, and case studies. These are also accessible by other companies within the IRPC Group.
- IRPC added compliance@irpc.co.th as another communication channel, allowing compliance officers to offer advice to employees more easily.
- The review of Process & Procedure for improvement was conducted.



A training session on corporate compliance was held by new recruits.



IRPC receiving Trailblazer Awards at the 2020 PDPA Awards from the Office of the Securities and Exchange Commission, together with the Office of the Personal Data Protection Commission, Faculty of Law, Chulalongkorn University and the National Productivity Institute. — +

3. Compliance Evaluation, Monitoring, Auditing & Reporting

- Various levels of executives completed the corporate compliance health check questionnaire and corporate compliance risk assessment, which helped IRPC determine the adequacy of its internal control. The results also contributed to the improvement of the corporate compliance program, as well as other related evaluations and assessments, such as the internal control assessment.
- To genuinely integrate governance, risk management, and corporate governance, various departments were asked to work closely together. They exchanged information, opinions, and suggestions, all of which contributed to the betterment of the corporate compliance program.
- Academic seminars were conducted with the objective of opinion exchange on compliance within the PTT Public Company Limited group, to ultimately integrate concrete operational guidelines with the same direction for compliance.

Privacy Policy

IRPC puts great emphasis on the personal data projection across all relevant sectors in accordance with the Personal Data Protection Act (PDPA), B.E. 2562 (2019). Regarding this matter, the following procedures have been done:

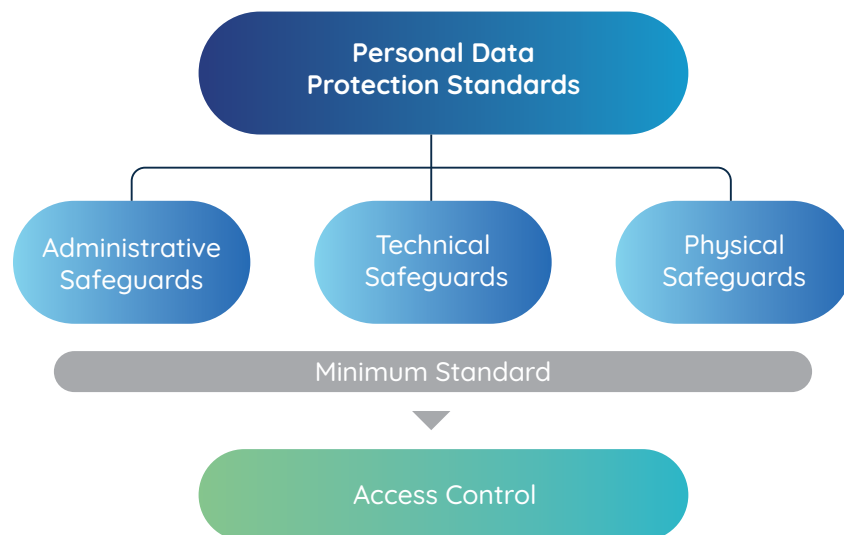
- Establishment of PDPA Corporate Compliance Committee and Privacy Policy.
- Establishment of Data Management System to control data flow and data mapping, standardized and in compliance with the law. The data management is classified by all stakeholders involved such as employees, business partners, customers, communities, and visitors.
- Providing knowledge on PDPA to employees and all stakeholders involved. Legal documents and various forms are prepared accordingly, along with evaluation and improvement of the work process to comply with PDPA law.
- Evaluation of the Company's operations, finding any operational processes needed to be updated and improve to be in accordance with PDPA.

- Implementation of Information Technology into 3 measures required by the government: (1) Administrative Safeguard (2) Technical Safeguard and (3) Physical Safeguard, all of which must be based on the security of personal information as required by law.

IRPC's Corporate Compliance PDPA Program received Trailblazer Awards at the 2020 Personal Data

Protection Act Awards on December 22, 2020. IRPC was awarded as a listed company on the SET that has outstanding adaptation to the everchanging technology, efficiently utilizing information systems such as Big Data in various transactions. Most importantly, IRPC has showcased its concrete implementation on the Privacy Policy, ensuring confidence among customers and stakeholders in all sectors.

IRPC's Personal Data Protection Procedure





“

The organizational capability boost up or NOAH Project is in its operating phase to “Transform Organization Capability-to-Perform” for concise and cutting-edge organizational structure and manpower, consistent with future business missions.

”



People Management



The Adjustment of Human Resource Management in Accordance with Business Strategy

IRPC is well-aware of the upcoming rapid change in the world of business competition full of challenges from diverse industries. Therefore, the Company strives to develop and enhance the organization's competitiveness in various important dimensions such as competitive cost, speedy business planning and execution, and decision-making precision. With such determination, in 2020, the Company has come up with a project to strengthen organizational performance called 'New Organization with Agile Human' (NOAH), with the major goals of cost and waste (Lean) reduction in work process and regulation by integrating new technologies to enhance work efficiency. In addition, the Company has also performed

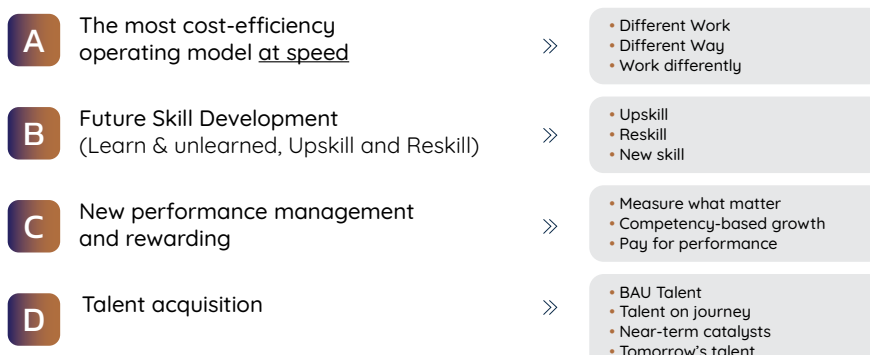
the following adjustment and transformation in numerous important dimensions;

- Modernization of the organizational structure and manpower rate to in accordance with the future business missions, including the cultivation of 'Agile Way of Work' implementation.
- Enhancement of existing skills (Upskill), along with new skills building (Reskill). This includes the cultivation of mindset about self-learning, creativity, customer-centric focus, and also up-to-date knowledge on digital and technology.
- Improvement of recruiting and selection guidelines, in order to increase the proportion of knowledgeable talents (mid-career) with diverse experiences to drive the company's current and future missions.

NOAH Project is in its operating phase to "Transform Organization Capability-to-Perform"

New Organization

Agile Human



The Development of Human Resource Management

• Employee's Competency Development

In order for IRPC to be equipped and well-prepared for adaptation at all times, the Company has set up a management system to ensure that its employees' competency, expertise, and leadership are in line with the Company's strategies. Personnel development courses for employees at all levels and career fields have been designed and developed in collaboration with leading institutions and organizations. This includes curriculum, contents, learning and teaching methods, as well as action learning, job rotation, and on-job training.

In addition, the Company has improved the knowledge management and employees' learning system to be up-to-date, where they can easily access various courses and curriculum via online system which is connected to external institutions and organizations.

• Preparing our People for the Future

The management team has created a succession planning chart covering managerial-level personnel who are crucial to the Company's business. Employees with high potential (Talent) are also categorized in order to effectively magnify their knowledge and ability to drive the Company's current and future business affairs smoothly.

• Development of Human Resource Management System

The human resource management system has been redesigned to support more concise and efficient working methods, including the digitization of paper documents to iConnect, the HR digital platform which connects all HR systems in one place via Web/Mobile application. This helps maximize the convenience and speed in HR data storage which leads to more accurate data analysis and design. Furthermore, the Company also cooperates with health service providers to develop an application for medical expense management and reimbursement, along with employees' health data analysis to organize various health promotion activities accordingly.



Employees' Well-being

IRPC has set up competitive benefits budget for employees at all levels according to the Company's operating results. The structure of the compensation component corresponds to the employees' role and responsibility, such as variable pay for manager level and above. In addition, various welfare necessary for employees' effective performance and the good quality of life are organized accordingly, such as accommodation,

transportation, uniforms, annual health check-up, reimbursement of medical expenses, accidents or death, and provident funds. Furthermore, the Company also provides sport center, soccer field, and a variety of clubs for shared interest groups to encourage and promote better physical and mental well-being among its employees.

As of the end of 2020, the Company and its subsidiaries had a total of 5,452 employees, divided into 5,235 employees of IRPC Public Company Limited and 217 employees of subsidiaries, namely IRPC Oil Co., Ltd. IRPC A&L Co., Ltd., IRPC Technology Co., Ltd., and iPolymer Co., Ltd. with details as follows:

Department	Number of Employees (person)
1. Department under the President and CEO	99
2. Accounting and Finance	155
3. Commercial and Marketing	267
4. Corporate Strategic Planning	79
5. Management and Organizational Development	344
6. Petrochemical and Refinery Operation	2,737
7. Innovation and Operation for Excellence	1,554
Total IRPC Co., Ltd. Employees	5,235
Total Subsidiaries' Employees	217
Total Number of Employees	5,452

Employee Remuneration

The Company and its subsidiaries paid remuneration for their employees, comprising salary and wages, overtime, bonus, provident fund, and social security contributions, employee benefits, and others for the year 2020 in the amount of 9,088 million baht, a decrease of 11% from 2019.

Human Rights Protection

The Company's human resource management practices are adhered to the principles of respect, protection and promotion of human rights, in accordance with the UN Guiding Principles on Business and Human Rights and the United Nations Global Compact (UNCG). These guidelines are also promoted to all stakeholders involved in IRPC's business processes.

The New-normal Work

In the midst of the COVID-19 crisis, IRPC has taken measures to ensure its employees and their families' safety by providing necessary protective equipment for all workers such as masks and alcohol spray. The Company also closely monitors the health and welfare status of its workers, putting as much effort as possible on the work-from-home regime to reduce congestion and infection at work and public places, while holding most meetings via electronic meeting system. Preparatory Working Group, a 24-hour surveillance monitoring has been established to monitor and control the spread of COVID-19 in the work place. The COVID-19 War Room, a COVID-19 operations center regularly keeps the employees informed about the up-to-date outbreak situation and recommended practices. In addition, a mobile application has been developed to monitor each employee's status and position daily (Daily check-in).



IRPC safe and far from COVID-19



Social distancing

Wearing a mask

Always washing hands

Scanning with Thai Chana

COVID-19/Communication War Room Taskforce

Internal Control and Connected Transactions + _____

The Board's View on Internal Controls

IRPC Public Company Limited implements internal controls in compliance with the COSO Internal Control-Integrated Framework to achieve its goals in three areas: operation, reporting, and compliance with laws, rules, and regulations. The management and Internal Control developed an internal control assessment form according to the criteria set forth by the Securities and Exchange Commission (SEC). The assessment form was reviewed and commented on by the Audit Committee and was subsequently submitted to the board at Board Meeting No. 1/2021 on January 19, 2021, in which independent directors and the Audit Committee were also present. It was the board's opinion that IRPC had sufficient and suitable internal controls, that there was no material shortcoming that would affect the fulfillment of the objectives of IRPC's internal controls, and that suitable processes and personnel had been put in place to implement such internal controls efficiently and effectively. The board also found that the report was accurate and credible and that IRPC had been operating in compliance with applicable laws, rules, and regulations and able to safeguard IRPC and its subsidiaries' assets from misuse or unauthorized use by directors, executives, or employees as well as prevent transactions with individuals who might have conflicts of interest and connected individuals.

IRPC regularly improves its internal controls due to changing internal and external factors. In 2020, the company enhanced its the following components of internal controls:

1. Control Environment

The board and management advocated a corporate culture in which competent and morally sound people were vital to the realization of IRPC's vision and mission in an efficient and effective manner. They also advocated compliance with the code of conduct and a grounded and appropriate control environment.

The board had issued corporate governance, compliance, anti-corruption, and anti-bribery policy, as well as a code of conduct. Directors, executive officers, and employees were expected to adhere to these guidelines in their day-to-day operations. In addition, every employee was required to electronically submit annual conflicts of interest report. They also completed a code of conduct compliance self-assessment.

The Board of Directors oversaw the overall operations independently of the management team. It expressed opinions and provided suggestions to company strategies, which guided management in their business and operation planning. The board also regularly monitored IRPC's performance and its own performance to ensure that the Company would achieve its goals.

IRPC's corporate structure, comprising business groups and functions, allowed for effective management. The entire IRPC Group was steered towards the same goal. This separation of powers provided a system of checks and balances. Moreover, the authority to approve activities and transactions was clearly prescribed and regularly reviewed. The people development plan clearly defined the desired qualifications of each post. It included succession planning for all major positions, along with leadership development programs and a standardized and systematic performance assessment process. The performance was regularly monitored, and the results of performance assessments were used to inform the determination of equitable compensation, doubling as an incentive for people to exercise their full potential.

IRPC pushed for the three lines of defense, regarded as an international best practice, for risk management and internal control. Operatives and heads of job functions acted as the first line of defense to ensure compliance with the defined policies and guidelines, with Internal Control and Corporate Compliance as the second line of defense, responsible for managing and supporting of other functions so as to bring their operations up to the established standard, and with Internal Audit as the third line of defense, tasked with auditing other functions to ensure proper and suitable internal control implementations.

2. Risk Assessment

The board and senior executive officers made risk management a priority, bolstering stakeholders' confidence in IRPC's ability to achieve short-and long-term goals. The oversight of risk management was entrusted to the Risk Management Committee (RMC), appointed by the board and comprising selected board members, and the Risk Management, and the Internal Control Committee (RMCC), chaired by the president and chief executive officer and composed of senior executives. These committees ensured the suitability and effectiveness of risk management and internal control, as well as concrete implementations of risk management measures throughout the organization. Management guidelines were as follows:

The ISO 31000 (2018) family of risk management standards, COSO's 2017 Integrated Framework of Enterprise Risk Management, and the Risk Management Policy served as guidelines for managing corporate risks, functional risks, and project risks. The Company's goals, changes in internal and external factors, as well as chances of corruption and fraud were thoroughly considered, allowing IRPC to devise a comprehensive range of risk mitigation measures. Furthermore, IRPC reviewed its known risks and monitored the progress of risk management to contain risks within the risk appetite.

The RMC and the RMCC received a report summarizing details of corporate risk management every quarter. A summary of functional risk management, meanwhile, went to the meeting of its respective business unit or function.

With a business continuity management system (BCMS) that aligned with the ISO 22301 (2019) standard in place, IRPC was prepared to handle emergencies and crises. The system ensured that IRPC would be able to continue operating by minimizing impact and maintaining its corporate reputation.

3. Control Activities

IRPC was armed with efficient and effective control activities based on internal control best practices. These activities allowed IRPC to take the necessary risks while ensuring that goals would be met. Written regulations, policies, provisions, manuals, and procedures determined the scope of power of executive officers and employees in each corporate echelon, including the ability to authorize a business transaction. IRPC monitored compliance with these regulations, policies, provisions, manuals, and procedures regularly. It also routinely monitored its compliance with the policy and guidelines governing transactions with potential conflicts of interest to ensure these transactions were transparently, accountably, and fairly approved in the best interest of the Company.

IRPC applied a continuous control monitoring system (CCMS) to the procurement, sales, and payment processes. It helped the company continuously monitor and discover irregularities effectively, according to principles of checks and balances.

IRPC had developed control self-assessments (CSAs) to cover key operations of IRPC, consisting of the organizational control self-assessment, the process control self-assessment, and the operational control self-assessment. These control self-assessments enabled the management to further improve upon control activities to thoroughly and comprehensively manage and mitigate risks.

IRPC further improved the efficiency and effectiveness of its project governance guidelines, in which directors and relevant units were responsible for reviewing project details, risk assessment, and risk management guidelines in all aspects at every step of a project.

IRPC also initiated the New Organization with Agile Human (NOAH) Project to restructure its business costs, boost its short-term operating results, and bolster its capabilities in support of its future missions, which included business transformation; operational efficiency enhancement with respect to costs, quality, and speed; human development for emerging jobs; incentive systems; recruitment of external talents; and alternative offers for employees seeking new challenges.

As for its information technology, IRPC complied with the ISO 27001 standards for information security management, bolstering stakeholders' confidence in the efficiency and effectiveness of IRPC's data security.

IRPC also established a personal data protection policy and appointed a task force to improve and develop a personal data control process. The Personal Data Protection Act was also communicated to employees. At present, IRPC is in the process of developing its information technology system and appointing data protection officers.

4. Information & Communication

The quality of information and communication was of great importance to IRPC because it led to effective internal control. IRPC developed an e-compliance system to compile data on relevant laws, rules, and regulations, along with a compliance assessment system, expected to be completed within 2021. IRPC's directors, management, and employees were entitled to vital information about the Company's performance. The directors received meeting documents in advance to afford them sufficient time to digest the information and make their decisions accordingly.

Furthermore, IRPC raised awareness of governance, risk management, and compliance (GRC) among its employees through regular communications, informing them of implementation guidelines and requirements. The goal of GRC communications was to ensure efficiency, transparency, and compliance.

Internal channels of communication included Town Hall (senior management to employees), corporate intranet, electronic mail, and Line chat groups. Meanwhile, channels of communication for external stakeholders included text messaging (SMS), Line Group, electronic mail, Facebook, and company website. A specialized unit was directly responsible for disclosing critical information to stakeholders on a regular basis. Through a well-defined whistleblower system, IRPC assured its employees and external parties that their reports would be reviewed with utmost confidentiality, fairness, honesty, and transparency, and timeliness.

5. Monitoring Activities

IRPC monitored and assessed the adequacy of internal controls. It also formulated remedial measures for weaknesses uncovered to ensure the efficiency and effectiveness of controls. The Company required the management of every corporate echelon to oversee and evaluate the internal processes of their respective business unit or function for efficiency and compliance.

The Internal Control, a unit under Corporate Strategies, was tasked with assessing the sufficiency and suitability of internal controls and providing remedial recommendations if any vulnerabilities were found. To this end, IRPC required any internal control shortcomings to be reported to the management immediately. It also made sure that the remedial progress would be monitored to ensure the effectiveness and timeliness of the remedy.

Internal Control, an independent unit reporting directly to the Audit Committee, reviewed and evaluated the effectiveness of internal controls according to the audit plan approved by the Audit Committee. This audit plan had been aligned with corporate strategies and significant risks. Internal Control also provided suggestions that could enhance the effectiveness and efficiency of internal controls to management for remedial measures to be executed. Additionally, Internal Control reported evaluation results and remedial progress (until the flaw was corrected) to the Audit Committee.



(Mr. Kris Imsang)

Chairman

IRPC Public Company Limited

Connected Transactions

For the fiscal year 2020, IRPC and its subsidiaries were engaged in key connected transactions with related companies or parties. These transactions were based on market prices or, in the absence of market prices, the prices of agreements at fair prices and conditions. The relationship and connected transactions are described below:

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2020	2019	2018	Nature and Condition
1.	PTT Plc (PTT) Relationship: - IRPC's major shareholder with 45.05% shares - PTT Management on IRPC Board: Mr. Noppadol Pinsupa Mr. Kris Imsang Mr. Chawalit Tippawanich	- Sale of goods - Purchase of goods - Other revenue - Sales and administrative expenses - Interest payables - Account receivables - Account payables - Other receivables - Other payables	593 103,029 75 46 3 542 21,674 1 -	22 155,802 11 54 31 2 21,431 - -	14,973 180,340 280 56 - 3 22,782 6 3	IRPC provided tank storage service and sold petroleum products to PTT IRPC bought crude and natural gas from PTT IRPC received logistics compensation IRPC paid personnel expenses to PTT IRPC paid short-term loan interest (ICBL) to PTT
2.	PTT Oil and Retail Business Plc (PTTOR) Relationship: 99.99% shares held by PTT Plc	- Sale of goods - Purchase of goods - Other revenue - Sales and administrative expenses - Account receivables - Account payables	24,102 13 1 - 1,619 -	26,830 22 - 2 1,608 -	15,390 7 - - 1,455 2	IRPC sold petroleum products to PTTOR IRPC bought lubricants from PTTOR IRPC received store decoration revenue from PTTOR IRPC Oil and IRPCT paid royalties and marketing fees for selling goods to PTTOR

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2020	2019	2018	Nature and Condition
3.	Thai Oil Plc (TOP) Relationship: 45.03% shares held by PTT Plc	- Service revenue - Purchase of crude and materials for legal reserves - Sales and administrative expenses - Account receivables	118 - - 11	177 2,240 4 9	346 1,668 - 18	IRPC provided tank storage service to TOP IRPC bought crude and materials for legal reserves from TOP IRPC paid compensation to TOP
4.	Thai Lube Base Plc (TLB) Relationship: 99.99% shares held by TOP	- Sale of goods - Purchase of goods	- -	192 5	140 -	IRPC sold aromatics to TLB IRPC bought lube base oil from TLB
5.	Thai Paraxylene Co., Ltd. (TPX) Relationship: 99.99% shares held by TOP	- Sale of goods - Purchase of goods - Account payables	- 743 67	44 606 11	165 1,299 (45)	IRPC sold aromatics to TPX IRPC bought aromatics from TPX
6.	Thai Oil Marine Co., Ltd. (TOM) Relationship: 99.99% shares held by TOP	- Service revenue - Account receivables	34 2	34 3	33 4	IRPC provided port services to TOM
7.	TOP Solvent Co., Ltd. (TS) Relationship: 99.99% shares held by Thai Oil Solvent Co., Ltd.	- Sale of goods - Purchase of goods - Account receivables - Account payables	767 50 69 7	1,100 90 85 8	1,488 107 104 8	IRPC sold aromatics to TS IRPC bought solvents from TS
8.	TOP Solvent (Vietnam) Co., Ltd. Relationship: 99.99% shares held by TOP Solvent Co., Ltd.	- Sale of goods - Account receivables	433 56	675 32	791 29	IRPC sold aromatics to TSV
9.	Sak Chaisidhi Co., Ltd. (SAKC) Relationship: 80.52% shares held by TOP Solvent Co., Ltd.	- Sale of goods - Account receivables	141 5	324 4	287 5	IRPC sold aromatics to SAKC
10.	Ubon Bio Ethanol Plc (UBBE) Relationship: 21.28% shares held by Thailoil Ethanol Co., Ltd.	- Purchase of goods - Account payables	253 1	- -	- -	IRPC bought ethanol from UBBE

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2020	2019	2018	Nature and Condition
11.	PTT Energy Solutions Co., Ltd. (PTTES) Relationship: 40.00% shares held by PTT Plc 20.00% shares held by IRPC Plc - Common director: Mr. Chawalit Tippawanich	- Other revenue - Sales and administrative expenses	3 77	- 97	- 115	IRPC received personnel expenses from PTES IRPC paid PTES for technical services
12.	Energy Complex Co., Ltd. (EnCo) Relationship: 50.00% shares held by PTT Plc	- Sales and administrative expenses - Depreciation for right-of-use assets - Interest paid according to lease agreement - Rights of use assets - Lease liabilities - Accrued interest under lease agreement - Security deposit	65 30 2 33 34 1 20	98 - - - - 20	95 - - - - -	IRPC rented offices and facilities from EnCo for 3 years (Feb. 2019-Jan. 2022)
13.	PTT International Trading Pte. Ltd. (PTTT) Relationship: 99.99% shares held by PTT Plc	- Sale of goods - Purchase of goods - Revenue (expenses) from oil futures contracts - Account receivables - Other receivables - Other payables	8,596 - (10) 539 - 125	18,248 629 201 1,289 40 -	23,052 331 12 1,207 5 -	IRPC sold petroleum products to PTTT IRPC bought petroleum products from PTTT Expenses from oil futures contracts entered with PTTT
14.	Dhipaya Insurance Plc (TIP) Relationship: 13.33% shares held by PTT Plc	- Other revenue - Sales and administrative expenses - Other payables	244 307 3	6 270 2	- 259 2	IRPC received compensation from TIP IRPC paid premiums for plants and accident insurance to TIP

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2020	2019	2018	Nature and Condition
15.	PTT Tank Terminal Co., Ltd. (PTTTANK) Relationship: 99.99% shares held by PTT Plc - Common director Mr. Kris Imsang	- Other revenue - Other receivables	- -	3 -	3 1	IRPC received personnel wages from PTTTANK
16.	Business Services Alliance Co., Ltd. (BSA) Relationship: 25.00% shares held by PTT Plc	- Other revenue - Sales and administrative expenses - Other payables	3 269 22	3 267 22	3 261 2	IRPC Oil earned revenue for store administrative services from BSA IRPC paid personnel wages to BSA
17.	Sport Services Alliance Co., Ltd. (SSA) Relationship: 99.99% shares held by BSA - Common director Air Marshal Boonsuib Prasit - IRPC Management on SSA Board: Mr. Phothiswat Paopongchuang	- Service Revenue - Sales and administrative expenses	- -	2 5	- 5	IRPCT provided property services to SSA IRPC funded publicity for the PTT Rayong soccer team for SSA
18.	PTT Exploration and Production (PTTEPI) Relationship:	- Sales and administrative expenses	-	2	-	IRPC paid security audit to PTTEPI
19.	Global Power Synergy Plc (GPSC) Relationship: 22.81% shares held by PTT Plc	- Other revenue	11	-	-	IRPC provided research services to GPSC
20.	PTT Global Chemical Plc (GC) Relationship: 45.41% shares held by PTT Plc	- Sale of goods - Purchase of goods - Purchase of crude and materials for legal reserves - Other revenue - Sales and administrative expenses - Account receivables - Account payables	5,996 11,263 - - 4 595 939	13,413 19,312 405 - 7 1,200 1,721	19,954 25,809 - 2 7 1,517 1,941	IRPC sold petroleum products to GC IRPC bought petroleum products from GC IRPC purchase of crude and materials for legal reserves with GC IRPC provided research services to GC IRPC paid personnel wages to GC

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2020	2019	2018	Nature and Condition
21.	GC Marketing Solutions Co., Ltd. (GCM) Relationship: 99.00% shares held by GC	- Sale of goods - Purchase of goods - Account receivables - Account payables	118 286 20 25	124 377 19 13	249 571 15 33	IRPC sold polymer to GCM IRPC bought polymer from GCM
22.	GC Logistics Solutions Co., Ltd. (GCL) Relationship: 99.00% shares held by GC	- Sales and administrative expenses	5	5	3	IRPC paid GCL for transportation services
23.	GC Styrenics Co., Ltd. (GCS) Relationship: 99.99% shares held by GC	- Sale of goods - Account receivables	1 -	55 -	231 50	IRPC sold aromatics to GCS
24.	GC Glycol Co., Ltd. Relationship: 99.99% shares held by GC	- Purchase of goods - Account payables	1 -	2 -	13 2	IRPC bought petrochemicals from GC Glycol
25.	GC Maintenance and Engineering Co., Ltd. (GCME) Relationship: 99.99% shares held by GC	- Sales and administrative expenses - Other payables	13 -	15 3	2 2	IRPC paid GCME for engineering services
26.	PTT Asahi Chemicals Co., Ltd. (PTTAC) Relationship: 50.00% shares held by GC	- Purchase of goods - Account payables	1,122 141	1,417 131	2,241 185	IRPC bought petrochemical products from PTTAC
27.	PTT Digital Solution Co., Ltd. Relationship: 40.00% shares held by GC 20.00% shares held by PTT Plc - Common director Mr. Noppadol Pinsupa	- Sales and administrative expenses - Other payables	29 -	31 -	31 1	IRPC paid PTT Digital for IT services
28.	PTT Phenol Co., Ltd. (PPCL) Relationship: 99.99% shares held by GC	- Service revenue - Account receivables - Other payables	- - -	9 3 -	- - 1	IRPC provided tank storage service to PPCL

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2020	2019	2018	Nature and Condition
29.	NPC Safety and Environmental Service Co., Ltd. (NPC & SE) Relationship: 99.99% shares held by GC	- Purchase of goods - Sales and administrative expenses	- 1	- 1	1 2	IRPC bought safety equipment from NPC S&E IRPC paid NPC S&E for safety equipment rent
30.	Global Green Chemicals Plc (GGC) Relationship: 72.29% shares held by GC	- Purchase of goods - Account payables	562 39	212 64	255 62	IRPC bought petroleum products from GGC
31.	GCM Polymer Trading DMCC* Relationship: 100% shares held by GC Marketing Solutions Co., Ltd.	- Sale of goods - Account receivables	77 3	128 5	72 8	IRPC sold polymer to GCM Polymer Trading DMCC
32.	IRPC Clean Power Co., Ltd. (IRPC-CP) Relationship: 51.00% shares held by Global Power Synergy Plc 48.99% shares held by IRPC Plc - IRPC Management on IRPC-CP Board: Mrs. Nidcha Jirametthanakij Mr. Somkiat Lertritpuwadol Mr. Woravuth Sivapetranart	- Sale of goods - Purchase of goods - Other revenue - Account receivables - Account payables - Other receivables - Other payables	45 2,296 117 4 190 - 215	45 2,356 116 8 341 1 213	62 2,308 28 6 342 5 226	IRPC sold power and water to IRPC-CP IRPC bought steam from IRPC-CP IRPC provided power plant related services to IRPC-CP

Note:

* IRPC records office building space rental in accordance with the Thai Financial Reporting Standards No.16: Leases, which is effective from January 1, 2020.

Connected Transactions Policy and Requirements

Significant connected transactions must be considered and approved by the Board of Directors. As IRPC and its subsidiaries operate fully integrated refining and petrochemical businesses, the same business group as PTT Group companies, connected transactions among IRPC, its subsidiaries, and PTT affiliates are inevitable and regarded as normal business operations. Such connected transactions included trading of oil products and related services, as well as other transactions that support normal business, all executed at arm's length with the same pricing and conditions as conducted with the third party and without benefit transfer among concerned parties. IRPC has considered these connected transactions prudently, reasonably, and independently, for the best interests of the Company.

Connected Transaction Measures

IRPC complied with the requirements of the Securities Exchange Commission (SEC) and the Securities Exchange of Thailand (SET) regarding connected transactions. The Board has appropriately considered the transactions with possible conflicts of interest to ensure that they were executed in a fair, transparent, and sensible manner. Any directors, employees, or related parties with potential conflicts of interest must leave a given meeting and must not vote on the agenda item in question. In addition, on a quarterly basis, the Audit Committee reviews IRPC's and its subsidiaries' connected transactions with related companies or parties to avoid conflicts of interest and ensure maximum benefits for IRPC.

Policy on Future Connected Transactions

IRPC's future connected transactions will be conducted in the normal course of business in adherence to suitable conditions and fair market prices. This practice is meant to ensure the best interests of all shareholders and stakeholders with stringent conformity to the corporate governance policy as well as SEC's and SET's regulations on connected transactions.

Opinion of the Audit Committee

Having reviewed all connected transactions, the Audit Committee regards these connected transactions as sensible and conducted in the normal course of business, based on suitable reference market prices, with the same pricing and conditions as those executed with a third party, and in conformity to the corporate governance policy, as well as SEC's and SET's regulatory requirements.





Financial Statements

Report of the Board of Directors' Responsibilities
for the Financial Reports

Report of the Independent Certified
Public Accountants

Financial Statements

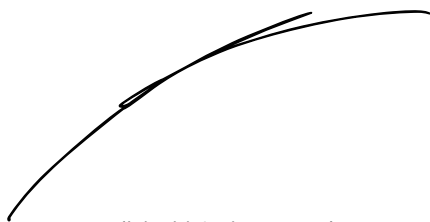
Notes to the Financial Statements

Report of the Board of Directors' Responsibilities for the Financial Reports

Dear Shareholders,

The financial statements of IRPC Public Company Limited and subsidiaries for the year ended on December 31, 2020, were prepared under the requirements of the Securities and Exchange Commission and the Securities and Exchange Act, B.E. 2535 (1992) and the announcements of the Department of Business Development issued under Article 11 Paragraph 3 of the Accounting Act B.E. 2543 (2000) and the financial reporting standards enforced by the Federation of Accounting Professions.

The Board of Directors is responsible for IRPC's and subsidiaries' financial reports to ensure that our financial position, performance, and cash flow statements are materially correct. IRPC has recorded accurate, complete and sufficient accounting journal entries to maintain assets, ensure effective internal control, prevent fraud and substantially irregular transactions. In preparing these reports, IRPC has adopted suitable and consistently practiced accounting policy in line with proper financial reporting standards. Material data have been duly disclosed in the Notes to the Financial Reports. The Auditor, having scrutinized the consolidated statements, expressed their views in the Auditor's Report.



(Mr. Kris Imsang)
Chairman



(Mr. Chawalit Tippawanich)
President and Chief Executive Officer

REPORT OF THE INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

TO THE SHAREHOLDERS AND BOARD OF DIRECTORS

IRPC PUBLIC COMPANY LIMITED

Opinion

We have audited the consolidated financial statements of IRPC Public Company Limited and its subsidiaries (the “Group”) and the separate financial statements of IRPC Public Company Limited (the “Company”) which comprise the consolidated and separate statements of financial position as at December 31, 2020, and the related consolidated and separate statements of profit or loss, comprehensive income, changes in shareholders’ equity and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of IRPC Public Company Limited and its subsidiaries and of IRPC Public Company Limited as at December 31, 2020, and financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (“TFRSs”).

Basis for Opinion

We conducted our audit in accordance with Thai Standards on Auditing (“TSAs”). Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Consolidated and Separate Financial Statements section of our report. We are independent of the Group in accordance with the Federation of Accounting Professions’ Code of Ethics for Professional Accountants together with the ethical requirements that are relevant to the audit of the consolidated and separate financial statements, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated and separate financial statements of the current period. This matter was addressed in the context of our audit of the consolidated and separate financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on this matter.

Key Audit Matter	Audit Responses
<p>The measurement of inventories valuation</p> <p>Inventories of the Group are significant balance to the consolidated and separate financial statements. The raw material and finished goods are commodities that contain intense price volatility. This volatility may lead to valuation of inventories at the end of reporting period as inventories are measured at the lower of cost or net realizable value.</p> <p>The accounting policy of inventories valuation of the Group and the detail of inventories are disclosed in notes to the financial statements no. 3.5 and 10, respectively</p>	<p>Key audit procedures included:</p> <ul style="list-style-type: none"> • Gain understanding and performing test of design and implementation as well as operating effectiveness of the relevant controls over inventories valuation measurement process. • Assessing the appropriateness of the methodology used to calculate the net realizable value of inventories at the end of reporting period, considering the reasonableness of the market price used by reference to expected selling price of commodity, and testing the accuracy of calculation. • If the net realizable value is lower than the cost, considering to propose the adjustment of allowance for diminution in value of inventories in the consolidated and separate financial statements. • Assessing the adequate disclosure in relation to the estimation of allowance for diminution in value of inventories in notes to the financial statements.

Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and our auditor's report thereon.

Our opinion on the consolidated and separate financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated and separate financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

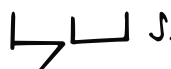
- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.



Mongkol Somphol
Certified Public Accountant (Thailand)
Registration No. 8444

BANGKOK
February 9, 2021

DELOITTE TOUCHE TOHMATSU JAIYOS AUDIT CO., LTD.

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION
AS AT DECEMBER 31, 2020

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2020	2019	2020	2019
ASSETS					
CURRENT ASSETS					
Cash and cash equivalents	7	8,851,190,030	3,036,126,995	8,553,136,627	2,764,412,068
Trade accounts receivable	8	9,625,781,866	10,100,386,072	9,710,936,029	10,153,973,023
Other receivables	9	1,585,854,255	1,582,071,126	1,584,137,439	1,581,312,950
Amounts due from related parties	37	154,464,906	162,173,173	165,642,618	172,097,599
Short-term loans and interest receivables					
to related parties	37	-	-	16,537,624	179,037,408
Inventories	10	21,168,883,208	25,995,287,572	20,919,528,121	25,748,043,100
Refundable value-added tax		537,439,458	1,585,139,773	533,961,959	1,583,313,869
Prepaid excise tax		255,242,922	330,935,214	255,242,922	330,935,214
Other current assets		1,192,113,385	854,795,147	1,155,761,909	823,842,123
Total Current Assets		<u>43,370,970,030</u>	<u>43,646,915,072</u>	<u>42,894,885,248</u>	<u>43,336,967,354</u>
NON-CURRENT ASSETS					
Other non-current financial assets	11	1,691,856,585	-	1,691,256,587	-
Investments in subsidiaries	12	-	-	2,353,190,057	1,635,587,818
Investment in joint ventures	12	612,304,490	257,283,107	650,999,990	259,999,990
Investments in associates	12	8,071,465,520	8,000,186,834	6,977,346,963	6,840,489,963
Other long-term investments	11	-	1,667,182,327	-	1,666,582,328
Long-term loans to related party	37	-	-	190,000,000	240,000,000
Investment property	13	921,962,956	921,963,149	886,096,147	886,096,147
Property, plant and equipment	14	114,550,574,163	121,068,812,418	112,765,515,060	119,215,976,401
Right-of-use assets	15	198,487,720	-	188,745,493	-
Intangible assets	16	774,280,379	563,509,194	743,119,673	559,421,318
Deferred tax assets	17	2,812,133,482	1,376,314,408	2,695,345,641	1,260,764,295
Derivative assets	22	141,370,434	-	141,370,434	-
Other non-current assets	18	345,146,578	348,222,387	342,816,917	345,892,726
Total Non-current Assets		<u>130,119,582,307</u>	<u>134,203,473,824</u>	<u>129,625,802,962</u>	<u>132,910,810,986</u>
TOTAL ASSETS		<u><u>173,490,552,337</u></u>	<u><u>177,850,388,896</u></u>	<u><u>172,520,688,210</u></u>	<u><u>176,247,778,340</u></u>

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS AT DECEMBER 31, 2020

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2020	2019	2020	2019
LIABILITIES AND SHAREHOLDERS' EQUITY					
CURRENT LIABILITIES					
Short-term borrowings from					
financial institutions	19.1	-	6,900,000,000	-	6,900,000,000
Trade payables	20	23,982,702,976	24,871,426,899	23,918,869,161	24,846,535,740
Other payables	21	3,245,572,581	1,997,433,138	3,215,527,955	1,965,275,904
Amounts due to related parties	37	365,417,570	241,947,300	382,691,146	259,915,151
Interest payables		209,779,321	103,960,198	209,779,321	103,960,657
Accrued bonus expense		1,159,216,963	1,880,920,998	1,144,440,840	1,857,238,620
Advance receipts for goods		803,910,513	740,502,462	762,135,869	732,695,218
Current portion of long-term borrowings from					
financial institutions and debentures	19.2	13,334,798,837	8,189,878,000	13,334,798,837	8,189,878,000
Current portion of lease liabilities	23	99,059,836	-	94,916,745	-
Derivative liabilities	22	340,834,475	-	340,834,475	-
Other current liabilities		517,260,219	780,492,654	475,005,940	737,758,755
Total Current Liabilities		<u>44,058,553,291</u>	<u>45,706,561,649</u>	<u>43,879,000,289</u>	<u>45,593,258,045</u>
NON-CURRENT LIABILITIES					
Long-term borrowings from financial institutions					
and debentures	19.2	48,596,605,989	43,881,479,672	48,596,605,989	43,881,479,672
Lease liabilities	23	89,713,738	-	83,911,113	-
Provisions for employee benefits	24	4,238,652,933	4,835,708,158	4,188,184,839	4,788,137,698
Derivative liabilities	22	153,852,361	-	153,852,361	-
Other non-current liabilities	25	687,247,000	24,528,784	659,887,110	-
Total Non-current Liabilities		<u>53,766,072,021</u>	<u>48,741,716,614</u>	<u>53,682,441,412</u>	<u>48,669,617,370</u>
TOTAL LIABILITIES		<u>97,824,625,312</u>	<u>94,448,278,263</u>	<u>97,561,441,701</u>	<u>94,262,875,415</u>

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS AT DECEMBER 31, 2020

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2020	2019	2020	2019
LIABILITIES AND SHAREHOLDERS' EQUITY					
(CONTINUED)					
SHAREHOLDERS' EQUITY					
SHARE CAPITAL					
Authorized shares capital					
20,475,000,000 ordinary shares					
of Baht 1 each		20,475,000,000	20,475,000,000	20,475,000,000	20,475,000,000
Issued and paid-up share capital					
20,434,419,246 ordinary shares					
of Baht 1 each		20,434,419,246	20,434,419,246	20,434,419,246	20,434,419,246
PREMIUM ON ORDINARY SHARES					
		28,554,212,397	28,554,212,397	28,554,212,397	28,554,212,397
RETAINED EARNINGS					
Appropriated					
Legal reserve	26	2,047,500,000	2,047,500,000	2,047,500,000	2,047,500,000
Unappropriated		24,600,387,026	32,349,454,358	23,924,126,011	30,969,521,834
<u>Less</u> Treasury stock - ordinary shares					
held by a subsidiary	27	(124,282,649)	(124,282,649)	-	-
Premium on treasury stock - ordinary shares					
held by a subsidiary		15,177,080	15,177,080	-	-
Other components of shareholders' equity		(1,011,145)	(20,750,552)	(1,011,145)	(20,750,552)
Total attribution to owners of the parent		75,526,401,955	83,255,729,880	74,959,246,509	81,984,902,925
Non-controlling interests	28	139,525,070	146,380,753	-	-
TOTAL SHAREHOLDERS' EQUITY		75,665,927,025	83,402,110,633	74,959,246,509	81,984,902,925
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		173,490,552,337	177,850,388,896	172,520,688,210	176,247,778,340

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF PROFIT OR LOSS
FOR THE YEAR ENDED DECEMBER 31, 2020

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2020	2019	2020	2019
Revenues from sales and services	6	174,462,551,415	239,314,608,086	173,436,283,377	238,173,656,170
Cost of sales and cost of rendering of services		(174,490,791,270)	(236,569,491,409)	(173,759,802,353)	(235,719,267,979)
Gross profit (loss)		(28,239,855)	2,745,116,677	(323,518,976)	2,454,388,191
Other income (expense)	29	651,966,129	2,309,245,116	1,904,758,649	2,602,013,579
Net derivative gain	30	354,503,906	1,645,193,767	354,503,906	1,645,193,767
Selling expenses		(1,374,983,114)	(1,464,306,903)	(1,434,793,701)	(1,649,638,238)
Administrative expenses	31	(5,718,090,948)	(5,591,711,400)	(5,603,588,360)	(5,370,450,979)
Profit (loss) from operations		(6,114,843,882)	(356,462,743)	(5,102,638,482)	(318,493,680)
Finance costs	33	(1,901,587,947)	(1,931,223,468)	(1,901,237,227)	(1,931,223,927)
Share of profit on investments in joint ventures and associates	12	332,669,007	363,448,401	-	-
Profit (loss) before income tax benefit		(7,683,762,822)	(1,924,237,810)	(7,003,875,709)	(2,249,717,607)
Income tax benefit	17	1,553,742,419	778,672,577	1,568,027,918	826,427,440
Profit (loss) for the year		(6,130,020,403)	(1,145,565,233)	(5,435,847,791)	(1,423,290,167)
Profit (loss) attributable to					
Owners of the parent		(6,151,699,849)	(1,174,044,420)	(5,435,847,791)	(1,423,290,167)
Non-controlling interests		21,679,446	28,479,187	-	-
Profit (loss) for the year		(6,130,020,403)	(1,145,565,233)	(5,435,847,791)	(1,423,290,167)
Basic Earnings (loss) per Share (Baht)	34	(0.30)	(0.06)	(0.27)	(0.07)

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEAR ENDED DECEMBER 31, 2020

Unit : Baht

	CONSOLIDATED		SEPARATE	
	FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
	2020	2019	2020	2019
Profit (loss) for the year	(6,130,020,403)	(1,145,565,233)	(5,435,847,791)	(1,423,290,167)
Other comprehensive income (loss) :				
Items that will be reclassified subsequently to profit or loss				
- Losses on revaluation of				
available for sale investments	-	(17,506,606)	-	(17,506,606)
- Income tax relating to revaluation of				
available for sale investments	-	3,501,321	-	3,501,321
Items that will not be reclassified subsequently to profit or loss				
- Gain on revaluation of financial assets	18,471,348	-	18,471,348	-
- Income tax relating to revaluation of financial assets	(3,694,270)	-	(3,694,270)	-
- Remeasurements of retirement benefit obligations	(139,361,688)	(1,254,401,318)	(139,800,843)	(1,248,596,716)
- Income tax relating to remeasurements of				
retirement benefit obligations	27,872,338	249,719,343	27,960,169	249,719,343
- Share of other comprehensive income (loss) on				
investment in associates	9,446,385	(829,212)	-	-
Other comprehensive income (loss) for the year - net of tax	<u>(87,265,887)</u>	<u>(1,019,516,472)</u>	<u>(97,063,596)</u>	<u>(1,012,882,658)</u>
Total comprehensive income (loss) for the year	<u><u>(6,217,286,290)</u></u>	<u><u>(2,165,081,705)</u></u>	<u><u>(5,532,911,387)</u></u>	<u><u>(2,436,172,825)</u></u>
Total comprehensive income (loss) attributable to:				
Owners of the parent	(6,238,965,736)	(2,193,560,892)	(5,532,911,387)	(2,436,172,825)
Non-controlling interests	21,679,446	28,479,187	-	-
	<u><u>(6,217,286,290)</u></u>	<u><u>(2,165,081,705)</u></u>	<u><u>(5,532,911,387)</u></u>	<u><u>(2,436,172,825)</u></u>

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2020

	Consolidated financial statements								Unit : Baht	
	Note	Issued and paid-up share capital	Premium on ordinary shares	Retained earnings		Treasury stock - ordinary shares held by a subsidiary	Premium on treasury stock - ordinary shares held by a subsidiary	Other components of shareholders' equity		Total shareholders' equity
				Appropriated - Legal reserve	Unappropriated			measured at fair value through other comprehensive income	attribution to owners of the parent	
Balance as at January 1, 2019		20,434,419,246	28,554,212,397	2,047,500,000	36,365,831,850	(124,282,649)	15,177,080	(6,745,267)	87,286,112,657	87,379,632,329
Dividends paid		-	-	-	(1,836,821,885)	-	-	-	(1,836,821,885)	(1,867,034,470)
Profit (loss) for the year		-	-	-	(1,174,044,420)	-	-	-	(1,174,044,420)	(1,145,565,233)
Other comprehensive income (loss) for the year		-	-	-	(1,005,511,187)	-	-	(14,005,285)	(1,019,516,472)	(1,019,516,472)
Increase in portion of investment of non-controller of subsidiaries		-	-	-	-	-	-	-	-	54,594,479
Balance as at December 31, 2019		20,434,419,246	28,554,212,397	2,047,500,000	32,349,454,358	(124,282,649)	15,177,080	(20,750,552)	83,255,729,880	83,402,110,633
Balance as at January 1, 2020		20,434,419,246	28,554,212,397	2,047,500,000	32,349,454,358	(124,282,649)	15,177,080	(20,750,552)	83,255,729,880	83,402,110,633
- As previously reported										
The effects from first-time adoption of new accounting policies	2.7	-	-	-	545,710,133	-	-	4,962,329	550,672,462	550,672,462
Balance as at January 1, 2020		20,434,419,246	28,554,212,397	2,047,500,000	32,895,164,491	(124,282,649)	15,177,080	(15,788,223)	83,806,402,342	83,952,783,095
- Restated										
Dividends paid		-	-	-	(2,041,034,651)	-	-	-	(2,041,034,651)	(2,069,569,780)
Profit (loss) for the year		-	-	-	(6,151,699,849)	-	-	-	(6,151,699,849)	(6,130,020,403)
Other comprehensive income (loss) for the year		-	-	-	(102,042,965)	-	-	14,777,078	(87,265,887)	(87,265,887)
Balance as at December 31, 2020		20,434,419,246	28,554,212,397	2,047,500,000	24,600,387,026	(124,282,649)	15,177,080	(1,011,145)	75,526,401,955	75,665,927,025

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2020

	Notes	Separate financial statements					Total shareholders' equity	Unit : Baht
		Issued and paid-up share capital	Premium on ordinary shares	Retained earnings		Other components of shareholders' equity Gain (loss) on financial assets measured at fair value through other comprehensive income		
				Appropriated - Legal reserve	Unappropriated			
Balance as at January 1, 2019		20,434,419,246	28,554,212,397	2,047,500,000	35,230,655,816	(6,745,267)	86,260,042,192	
Dividends paid	35	-	-	-	(1,838,966,442)	-	(1,838,966,442)	
Profit (loss) for the year		-	-	-	(1,423,290,167)	-	(1,423,290,167)	
Other comprehensive income (loss) for the year		-	-	-	(998,877,373)	(14,005,285)	(1,012,882,658)	
Balance as at December 31, 2019		<u>20,434,419,246</u>	<u>28,554,212,397</u>	<u>2,047,500,000</u>	<u>30,969,521,834</u>	<u>(20,750,552)</u>	<u>81,984,902,925</u>	
Balance as at January 1, 2020		20,434,419,246	28,554,212,397	2,047,500,000	30,969,521,834	(20,750,552)	81,984,902,925	
- As previously reported		-	-	-	545,710,133	4,962,329	550,672,462	
The effects from first-time adoption of new accounting policies	2.7	-	-	-	-	-	-	
Balance as at January 1, 2020		<u>20,434,419,246</u>	<u>28,554,212,397</u>	<u>2,047,500,000</u>	<u>31,515,231,967</u>	<u>(15,788,223)</u>	<u>82,535,575,387</u>	
- Restated		-	-	-	(2,043,417,491)	-	(2,043,417,491)	
Dividends paid	35	-	-	-	(5,435,847,791)	-	(5,435,847,791)	
Profit (loss) for the year		-	-	-	(111,840,674)	14,777,078	(97,063,596)	
Other comprehensive income (loss) for the year		-	-	-	23,924,126,011	(1,011,145)	74,959,246,509	
Balance as at December 31, 2020		<u>20,434,419,246</u>	<u>28,554,212,397</u>	<u>2,047,500,000</u>	<u>23,924,126,011</u>	<u>(1,011,145)</u>	<u>74,959,246,509</u>	

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2020

Unit : Baht

	CONSOLIDATED		SEPARATE	
	FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
	2020	2019	2020	2019
CASH FLOWS FROM OPERATING ACTIVITIES				
Profit (loss) before income tax benefit	(7,683,762,822)	(1,924,237,810)	(7,003,875,709)	(2,249,717,607)
Adjustments for:				
Depreciation	8,712,607,544	8,434,652,783	8,620,318,916	8,349,258,878
Amortisation	239,492,501	107,636,292	234,395,009	106,670,055
Interest income	(53,234,780)	(28,332,995)	(62,004,388)	(37,209,265)
Dividends income	(6,044,605)	(2,123,409)	(488,291,699)	(188,742,260)
Bad debts and doubtful accounts (Reversal)	(1,488,036)	(14,944,715)	173,450	(18,756,920)
Allowance for declining in value of inventories (Reversal)	27,645,077	(594,921,762)	27,202,013	(594,921,762)
(Gain) loss on exchange rate	416,371,122	(1,425,210,496)	416,495,509	(1,425,157,359)
Unrealised loss on fair value of derivatives	998,736,542	-	998,736,542	-
(Gain) loss on disposals of fixed assets and investment property	44,568,202	(78,008,960)	43,517,484	(77,970,817)
Loss on write-off of fixed assets	519,862,332	-	519,862,332	-
Loss on write-off of intangible assets	34,428,039	-	34,428,039	-
Gain on sales of investment in a subsidiary and a related party	-	(3,167,721)	-	(240,717,426)
Loss on impairment of investment in a joint venture	-	-	-	76,935,614
Reversal of loss on impairment of investment in a subsidiary	-	-	(717,602,239)	-
Reversal of loss on impairment of other long-term investments	-	(441,563,134)	-	(441,563,134)
(Reversal) loss on impairment of fixed assets and investment property	455,695,614	(250,736,691)	455,695,614	(150,600,005)
Share of profit on investments in associates and joint ventures	(332,669,007)	(363,448,401)	-	-
Finance costs	1,901,587,947	1,931,223,468	1,901,237,227	1,931,223,927
Employee benefit expenses (income)	(248,157,263)	1,077,013,733	(252,789,914)	1,063,397,099
Profit from operations before changes in operating assets and liabilities	5,025,638,407	6,423,830,182	4,727,498,186	6,102,129,018
Operating assets (increase) decrease				
Trade receivables	472,221,757	2,091,525,178	439,139,514	2,068,052,522
Other receivables	(3,407,853)	(797,376,991)	(3,059,669)	(797,695,832)
Amounts due from related parties	7,708,267	(75,288,368)	6,454,981	(72,493,174)
Inventories	4,798,759,287	2,740,934,757	4,801,312,966	2,694,950,108
Refundable value-added tax	1,047,700,314	277,607,110	1,049,351,910	260,168,259
Prepaid excise tax	75,692,292	(90,259,319)	75,692,292	(90,259,319)
Other current assets	(150,821,232)	(177,704,141)	(145,044,182)	(174,677,868)
Operating liabilities increase (decrease)				
Trade payables	(888,363,436)	(1,339,653,484)	(927,430,478)	(1,321,848,136)
Other payables	1,382,900,117	(1,329,339,375)	1,387,385,696	(1,336,241,960)
Amounts due to related parties	123,470,270	5,373,847	122,754,569	11,506,514
Accrued bonus expenses	(721,704,034)	(310,113,636)	(712,797,780)	(308,354,103)
Advance receipts for goods	63,408,051	245,261,038	29,440,651	247,878,225
Other current liabilities	(203,957,877)	38,129,809	(217,166,155)	49,676,863
Cash paid for employee benefits	(488,259,650)	(78,193,002)	(486,963,788)	(77,784,178)
Other non-current liabilities	662,718,216	(1,958,626)	659,887,110	-
Cash received from operations	11,203,702,896	7,622,774,979	10,806,455,823	7,255,006,939
Income tax paid	(54,957,259)	(95,597,066)	(25,658,303)	(69,803,579)
Net cash provided by operating activities	11,148,745,637	7,527,177,913	10,780,797,520	7,185,203,360

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2020

Unit : Baht

	CONSOLIDATED		SEPARATE	
	FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
	2020	2019	2020	2019
CASH FLOWS FROM INVESTING ACTIVITIES				
Interest received	53,234,780	28,332,995	62,181,412	38,029,885
Dividends received	6,044,605	2,123,409	44,619,376	89,404,195
Cash received (paid) for short-term loans to related parties	-	-	212,322,760	128,920,332
Proceeds from sales of investment in subsidiaries	-	3,960,400	-	280,572,435
Dividends received from an associate and a joint venture	258,704,472	99,338,065	258,704,472	99,338,065
Cash paid for increase in share capital of a subsidiary	-	-	-	(61,000,000)
Cash paid for investment in an associate and a joint venture	(527,857,000)	(194,999,993)	(527,857,000)	(194,999,993)
Cash paid for other-long term investment	-	(601,504,046)	-	(601,504,046)
Cash paid for purchases of fixed assets and investment property	(3,312,991,755)	(5,950,493,166)	(3,274,545,491)	(5,841,541,192)
Proceeds from sales of fixed assets and investment property	1,247,593	589,918,654	1,231,532	589,831,037
Cash paid for purchases of intangible assets	(352,772,190)	(124,671,419)	(340,097,391)	(123,971,419)
Other non-current assets	3,075,810	193,641,103	3,075,810	194,250,871
Net cash used in investing activities	<u>(3,871,313,685)</u>	<u>(5,954,353,998)</u>	<u>(3,560,364,520)</u>	<u>(5,402,669,830)</u>
CASH FLOWS FROM FINANCING ACTIVITIES				
Interest paid and financing fees	(1,799,320,640)	(2,055,517,949)	(1,798,948,951)	(2,055,517,949)
Net proceeds (paid) on settlements of financial derivative contracts	(380,498,625)	969,359,882	(380,498,625)	969,359,882
Cash paid for lease liabilities	(129,179,386)	-	(125,042,888)	-
Dividends paid	(2,041,034,651)	(1,836,821,885)	(2,043,417,491)	(1,838,966,442)
Dividends paid to non-controlling interests	(28,535,129)	(30,212,585)	-	-
Proceeds from non-controlling interests of subsidiaries	-	54,594,479	-	-
Proceeds (paid) from short-term borrowings from financial institutions	(6,900,000,000)	200,000,000	(6,900,000,000)	200,000,000
Proceeds from long-term borrowings from financial institutions	6,036,604,985	8,928,349,195	6,036,604,985	8,928,349,195
Proceeds from debentures issuance	11,982,328,571	-	11,982,328,571	-
Cash paid for long-term borrowings from financial institutions and debentures	(8,202,734,042)	(7,104,100,000)	(8,202,734,042)	(7,104,100,000)
Net cash used in financing activities	<u>(1,462,368,917)</u>	<u>(874,348,863)</u>	<u>(1,431,708,441)</u>	<u>(900,875,314)</u>
Net increase in cash and cash equivalents	5,815,063,035	698,475,052	5,788,724,559	881,658,216
Cash and cash equivalents as at January 1,	3,036,126,995	2,337,651,943	2,764,412,068	1,882,753,852
Cash and cash equivalents as at December 31,	<u><u>8,851,190,030</u></u>	<u><u>3,036,126,995</u></u>	<u><u>8,553,136,627</u></u>	<u><u>2,764,412,068</u></u>

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2020

Notes	Contents
1.	The Company's operations and general information
2.	Basis for preparation and presentation of the financial statements
3.	Significant accounting policies
4.	Critical accounting estimates and judgments
5.	Supplementary disclosure of cash flows information
6.	Segment information
7.	Cash and cash equivalents
8.	Trade receivables
9.	Other receivables
10.	Inventories
11.	Other non-current financial assets and other long-term investments
12.	Investments in subsidiaries, joint ventures and associates
13.	Investment property
14.	Property, plant and equipment
15.	Right-of-use assets
16.	Intangible assets
17.	Deferred income tax/income tax
18.	Other non-current assets
19.	Borrowings
20.	Trade payables
21.	Other payables
22.	Derivatives
23.	Lease liabilities
24.	Employee benefit obligations
25.	Other non-current liabilities
26.	Legal reserve
27.	Premium on treasury stock - ordinary shares held by a subsidiary
28.	Non-controlling interests
29.	Other income (expense)
30.	Net derivative gain

Notes	Contents
31.	Administrative expenses
32.	Significant expense by nature
33.	Finance costs
34.	Basic earnings (loss) per share
35.	Dividends paid
36.	Promotional privileges
37.	Related party transactions
38.	Financial instruments
39.	Commitments, letters of guarantee and significant agreements
40.	Significant claims and legal proceedings
41.	Events after the reporting period
42.	Approval of the financial statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2020

1. THE COMPANY'S OPERATIONS AND GENERAL INFORMATION

IRPC Public Company Limited (the "Company") is a public company incorporated in Thailand. The address of the Company's registered office is 299 Moo 5, Sukhumvit Road, Choengnueen District, Aumthur Muang, Rayong Province. The Company's office is located at 555/2 Energy Complex, Building B, 6th floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900.

The Company is listed on the Stock Exchange of Thailand. For reporting purposes, the Company and its subsidiaries are referred to as the "Group".

The Group is engaged in petroleum and petrochemical with its products being refinery, lubricant, olefins, aromatics, plastic resins and other petrochemical products.

As at December 31, 2020, PTT Public Company Limited is the major shareholder of the Company, holding 45.05%. The other major shareholders is Thai NVDR Company Limited holding 6.00%.

As at December 31, 2019, PTT Public Company Limited is the major shareholder of the Company, holding 47.55%. The other major shareholders is Thai NVDR Company Limited holding 7.93%.

Coronavirus disease 2019 ("COVID-19") pandemic

The coronavirus disease 2019 ("COVID-19") pandemic is continuing to evolve, resulting in an economic slowdown and adversely impacting most businesses and industries. This situation may bring uncertainties and have an impact on the environment in which the Group operates. The Group's management considered that there is no financial impact in respect of valuation of assets, provisions and contingent liabilities. However, the Group's management will continue to monitor the ongoing situation.

2. BASIS FOR PREPARATION AND PRESENTATION OF THE FINANCIAL STATEMENTS

- 2.1 The Group maintains its accounting records in Thai Baht and prepares its statutory financial statements in the Thai language in conformity with Thai Financial Reporting Standards and accounting practices generally accepted in Thailand.
- 2.2 The Group's financial statements have been prepared in accordance with the Thai Accounting Standard ("TAS") No. 1 "Presentation of Financial Statements", which was effective for financial periods beginning on or after January 1, 2020 onward, and the Regulation of The Stock Exchange of Thailand ("SET") dated October 2, 2017, regarding the preparation and submission of financial statements and reports for the financial position and results of operations of the listed companies B.E. 2560 and the Notification of the Department of Business Development regarding "The Brief Particulars in the Financial Statements (No. 3) B.E. 2562" dated December 26, 2019.
- 2.3 The financial statements have been prepared under the historical cost convention except as disclosed in the significant accounting policies.
- 2.4 The preparation of the financial statements in conformity with Thai Financial Reporting Standards requires the use of certain critical accounting estimates. It also requires the management to exercise its judgement in the process of applying the Group's accounting policies. The areas involve a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements (see Note 4).
- 2.5 Significant intercompany transactions between the Company and its subsidiaries have been eliminated from this consolidated financial statements. The consolidated financial statements for the year ended December 31, 2020 have included the subsidiaries' financial statements for the year ended December 31, 2020 which had been previously audited.

- 2.6 The English version of the consolidated and separate financial statements have been prepared from the financial statements that are in the Thai language under law. In the event of a conflict or a difference in interpretation between the two languages, the Thai version of financial information shall prevail.
- 2.7 Thai Financial Reporting Standards affecting the presentation and disclosure in the current period financial statements

During the period, the Group has adopted the revised and new financial reporting standards and guidelines on accounting issued by the Federation of Accounting Professions which become effective for fiscal years beginning on or after January 1, 2020. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards, with most of the changes directed towards revision of wording and terminology, and provision of interpretations and accounting guidance to users of standards. The adoption of these financial reporting standards does not have any significant impact on the Group's financial statements, except the following financial reporting standards:

Group of Financial Instruments Standards

Thai Accounting Standards ("TAS")

TAS 32 Financial Instruments : Presentation

Thai Financial Reporting Standards ("TFRS")

TFRS 7 Financial Instruments : Disclosures

TFRS 9 Financial Instruments

Thai Financial Reporting Standard Interpretations ("TFRIC")

TFRIC 16 Hedges of a Net Investment in a Foreign Operation

TFRIC 19 Extinguishing Financial Liabilities with Equity Instruments

The Group's management has adopted these Financial Instruments Standards by recognising the cumulative effect of initially adopting of these TFRSs as an adjustment to the opening balance of retained earnings and other components of shareholders' equity of the reporting period.

The Group's management has assessed the impact of such Financial Instruments Standards, which have the material impact as follows:

- Classification of financial assets
- Measurement of financial assets as measured at fair value through profit or loss and other comprehensive income
- Designating of financial liabilities as measured at fair value through profit or loss

The total impacts on the retained earnings and other components of shareholders' equity as at January 1, 2020 are as follows:

	Consolidated financial statements	Unit : Million Baht Separate financial statements
Unappropriated retained earnings		
Unappropriated retained earnings as at December 31, 2019	32,349	30,969
Derivative assets measured at fair value through profit or loss - net of tax	546	546
Unappropriated retained earnings from adoption of TFRS 9 on January 1, 2020	32,895	31,515
Other components of shareholders' equity		
Other components of shareholders' equity as at December 31, 2019	(21)	(21)
Other non-current financial assets measured at fair value through other comprehensive income - net of tax	5	5
Other components of shareholders' equity from adoption of TFRS 9 on January 1, 2020	(16)	(16)

The following table shows the information relating to financial assets and liabilities reclassified according to the adoption of TFRS 9:

					Unit : Million Baht
<u>Consolidated financial statements</u>					
	(1)	(2)	(3)	(4) = (1)+(2)+(3)	
	TAS 105			TFRS 9	
	Carrying			Carrying	
	amount as at			amount as at	
	December 31,			January 1,	
	2019	Reclassification	Remeasurement	2020	Classification
Assets					
<u>Current</u>					
Other receivables	778	(778)	76	76	Financial assets measured at fair value through profit or loss
Derivative assets	-	-	619	619	Financial asset measured at fair value through profit or loss
<u>Non-current</u>					
Other long-term investments	1,667	(1,667)	-	-	
Other non-current financial assets	-	1,667	5	1,672	Financial assets measured at fair value through other comprehensive income
Derivative assets	-	778	63	841	Financial assets measured at fair value through profit or loss
Liabilities					
<u>Current</u>					
Other payables	-	-	76	76	Financial liabilities measured at fair value through profit or loss
<u>Non-current</u>					
Deferred tax liabilities	-	-	136	136	

Unit : Million Baht

	<u>Separate financial statements</u>				<u>Classification</u>
	(1) TAS 105 Carrying amount as at December 31, 2019	(2) Reclassification	(3) Remeasurement	(4) = (1)+(2)+(3) TFRS 9 Carrying amount as at January 1, 2020	
Assets					
<u>Current</u>					
Other receivables	778	(778)	76	76	Financial assets measured at fair value through profit or loss
Derivative assets	-	-	619	619	Financial asset measured at fair value through profit or loss
<u>Non-current</u>					
Other long-term investments	1,666	(1,666)	-	-	
Other non-current financial assets	-	1,666	5	1,671	Financial assets measured at fair value through other comprehensive income
Derivative assets	-	778	63	841	Financial assets measured at fair value through profit or loss
Liabilities					
<u>Current</u>					
Other payables	-	-	76	76	Financial liabilities measured at fair value through profit or loss
<u>Non-current</u>					
Deferred tax liabilities	-	-	136	136	

Thai Financial Reporting Standards No. 16 “Leases” (“TFRS 16”)

This TFRS provides a comprehensive model for the identification of lease arrangements and their treatment in the financial statements of both lessees and lessors. This TFRS supersedes the following lease Standards and Interpretations upon its effective date, which are Thai Accounting Standard No. 17 “Leases” (“TAS 17”), Thai Accounting Standard Interpretation No. 15 “Operating Lease - Incentives”, Thai Accounting Standard Interpretation No. 27 “Evaluating the Substance of Transactions involving the Legal Form of a Lease” and Thai Financial Reporting Standard Interpretation No.4 “Determining whether on Arrangement contains a Lease”.

This TFRS does not significantly change the lease accounting for lessor. Under this TFRS, the lessor continue to classify a lease either as a finance lease or an operating lease and record the 2 types of lease separately.

For lessee accounting, there are significant changes to lease accounting in this TFRS by removing the distinction between operating and finance leases under TAS 17 “Leases” and requiring a lessee to recognise a right-of-use asset and a lease liability at the commencement date for all leases, except for short-term leases and leases of low-value assets. However, the lessor accounting treatment continues to require a lessor to classify a lease either as an operating lease or a finance lease, using the same concept as TAS 17 “Leases”. Details of these new requirements are described in Note 3 to the financial statements. The impact of the adoption TFRS 16 on the Group’s consolidated financial statements is described below.

The date of initial application of TFRS 16 “Leases” is January 1, 2020.

The Group’s management adopt this TFRS as following:

- Recognise lease liability at the date of initial application for all leases previously classified as operating lease under TAS 17 “Leases”. The lessee measure the lease liability at the present value of the remaining lease payment, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate at the date of initial application.

- Recognise right-of-use asset at the date of initial application for all leases previously classified as operating lease under TAS 17 “Leases”. The lessee measure the right-of-use asset by lease contract at the lease liability value, adjusted by the amount of any prepaid or accrued lease payments correspondent to the lease contract recognised in the statement of financial position before the date of initial application.
- The Group has applied a single discount rate to a portfolio of leases with reasonably similar characteristics.
- The Group has elected not to recognise right-of-use assets and lease liabilities to leases for which the lease term end within 12 months of the date of initial application which recognises the lease payments as an operating expense on a straight-line basis over the lease term.

Financial impact of the initial application of TFRS 16 “Leases”

The Group has applied TAS 16 “Leases” using the cumulative effect and did not restate with the comparative information which complied with TAS 17 “Leases”.

The following table shows the operating lease commitments disclosed applying TAS 17 “Leases” as at December 31, 2019, using the discounted rate implicit in the lease. In case that this rate cannot be readily determined, the Group could use its incremental borrowing rate at the date of initial application and the lease liabilities recognised in the statement of financial position at the date of initial application.

	Unit : Million Baht	
	Consolidated financial statements	Separate financial statements
Operating lease commitments as at December 31, 2019	491	608
Short-term leases and lease of low-value assets	(54)	(182)
Service agreements included in office building rental agreements	(120)	(120)
Effect of discounting the above amounts	(18)	(18)
Lease liabilities recognised as at January 1, 2020	299	288

As at January 1, 2020, the Group has recognised right-of-use assets of Baht 299 million and lease liabilities of Baht 299 million in the consolidated financial statements and the Company has recognised right-of-use assets of Baht 288 million and lease liabilities of Baht 288 million in the separate financial statements. The discount rate used in the lease liabilities assessment is 3.56%.

The Group disclosed the new accounting policies in Note 3 to the financial statements.

2.8 Thai Financial Reporting Standards announced in the Royal Gazette but not yet effective

The Federation of Accounting Professions has issued the Notification regarding Thai Financial Reporting Standards (TFRSs) that will be effective for the financial statements for the period beginning on or after January 1, 2021 onwards, which has been announced in the Royal Gazette on September 17, 2020. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards, with most of the changes directed towards revisions to references to the Conceptual Framework in TFRSs, the amendment for definition of business, the amendment for definition of materiality and accounting requirements for interest rate reform.

Amendment of Thai Financial Reporting Standard No.16 “Leases”

TFRS 16 has been amended for the Rent Concessions related to COVID-19, which is effective from June 1, 2020 with earlier application permitted. The amendment permits lessees, as a practical expedient, not to assess whether rent concessions that occur as a direct consequence of the COVID-19 pandemic and meet specified conditions are lease modifications and, instead, to account for those rent concessions as if they were not lease modifications. In addition, the revised TFRS 16 also added the requirements for the temporary exception arising from interest rate benchmark reform, which an entity shall apply these amendments for annual reporting periods beginning on or after January 1, 2022 with earlier application permitted. This revised TFRS 16 has been announced in the Royal Gazette on January 27, 2021.

The Group’s management will adopt the relevant TFRSs in the preparation of Group’s financial statements when they become effective. Also, the Group’s management is on the evaluating process to assess the impact of these TFRSs on the financial statements of the Group in the period of initial application.

2.9 Basis for preparation of consolidated financial statements

The consolidated financial statements included the accounts of the Company and subsidiaries, after elimination of intercompany transactions, of which the percentage of shareholding as at December 31, is as follows:

	Note	Business type	Country of registration	Percentage of shareholdings (%)	
				2020	2019
IRPC Oil Company Limited		Sales of oil products and gas	Thailand	99.99	99.99
IRPC Technology Company Limited		Vocational school	Thailand	99.99	99.99
IRPC A&L Company Limited	12	Distributing of petrochemical products	Thailand	57.48	57.48
iPolymer Company Limited	12	Distributing plastic resin and chemical products via E-Commerce system	Thailand	55.00	55.00
Indirectly invested by IRPC Oil Company Limited					
Rakpasak Company Limited		Oil vessel renting	Thailand	99.99	99.99

3. SIGNIFICANT ACCOUNTING POLICIES

Significant accounting policies of the Group are summarized below:

3.1 Group accounting - Investment in associates and subsidiaries and interest in joint ventures

Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

Intercompany transactions, balances and unrealised gains on transactions among the Group are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

In the separate financial statements, investments in subsidiaries are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

Transaction with non-controlling interests

The Group treats transactions with non-controlling interests as transactions with equity owners of the Group. For purchases from non-controlling interests, the difference between any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in shareholders' equity. Gains or losses on disposals to non-controlling interests are also recorded in shareholders' equity.

Disposal of subsidiaries

When the Group ceases to have control, any retained interest in the entity is re-measured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial assets. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities.

Associates

Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method in the consolidated financial statements. Under the equity method, the investment is initially recognised at cost, and the carrying amount is increased or decreased to recognise the investor's share of the profit or loss of the investee after the date of acquisition. The Group's investment in associates including goodwill are identified on acquisition date.

If the ownership interest in an associate is reduced but significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate.

The Group's share of its associates' post-acquisition profits or losses is recognised in the profit or loss, and its share of post-acquisition movements in other comprehensive income is recognised in other comprehensive income. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. When the Group's share of losses in an associate equals or exceeds its interest in the associate, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associate.

The Group determines at each reporting date whether there is any objective evidence that the investment in the associate is impaired. If this the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the associate and its carrying value and recognises the amount adjacent to share of profit (loss) of associates in the statement of profit or loss.

Unrealised gains on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associates. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred.

Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group. Dilution gains and losses arising in investments in associates are recognised in the statement of profit or loss.

In the separate financial statements, investments in associates are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

3.2 Foreign currency translation

Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). The financial statements are presented in Thai Baht, which is the Company's functional and the Group's presentation currency.

Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the statement of profit or loss.

3.3 Cash and cash equivalents

Cash and cash equivalents includes cash on hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less.

3.4 Trade receivables

a) Policies applicable from January 1, 2020

Trade receivables are stated at their invoice value less allowance for expected credit losses.

The allowance for expected credit losses is disclosed in Note 3.22.

b) Policies applicable prior to January 1, 2020

Trade receivables are carried at the original invoice amount and subsequently measured at the remaining amount less any allowance for doubtful accounts based on a review of all outstanding amounts at the year-end. The amount of the allowance is the difference between the carrying amount of the receivable and the amount expected to be collectible. Bad debts are written-off during the year in which they are identified and recognised in the statement of profit or loss within administrative expenses.

3.5 Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is determined by the weighted average method.

The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of the inventory, such as import duties and transportation charges, less all attributable discounts, allowances or rebates. The cost of finished goods and work in progress comprises raw materials, direct labour, other direct costs and related production overheads which based on normal operating capacity.

Net realizable value is calculated based on the estimated selling price in the ordinary course of business less the estimated costs of completion and the necessary costs to make the sale

Allowance for obsolescence, slow moving or defective inventories is recorded based on the consideration of future use of those inventories and the aging analysis at the end of each reporting period.

3.6 Other investments

Policies applicable prior to January 1, 2020

Available for sale investments are subsequently measured at fair value. The fair value of investments is based on quoted bid price at the close of business on the statement of financial position date by reference to the Stock Exchange of Thailand. The unrealised gains and losses of available for sale investments are recognised in other comprehensive income.

General investments are carried at cost less impairment loss.

A test for impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is recognised in the statement of profit or loss.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is recognised in the statement of profit or loss. When disposing of part of the Group's holding of a particular investment in debt or equity securities, the carrying amount of the disposed part is determined by the weighted average carrying amount of the total holding of the investment.

3.7 Investment property

Property that is held for long-term rental yields or for capital appreciation or both, and that is not occupied by the companies in the consolidated Group, is classified as investment property. Investment property also includes property that is being constructed or developed for future use as investment property.

Investment property of the Group is land and building held for long-term rental yields or for capital appreciation, including certain land which is currently undetermined for future use.

Investment property is measured initially at its cost, including related transaction costs and borrowing costs. Borrowing costs incurred for the purpose of acquiring, constructing or producing a qualifying investment property are capitalised as part of its cost. Borrowing costs are capitalised while acquisition or construction is actively underway and cease once the asset is substantially complete, or suspended if the development of the asset is suspended.

After initial recognition, investment property is carried at cost less any accumulated depreciation and any accumulated impairment losses.

Land is not depreciated. Depreciation on other investment properties which are buildings is calculated using the straight line method to allocate their cost to their residual values over their estimated useful lives for 20 years.

Subsequent expenditure is capitalised to the asset's carrying amount only when it is probable that future economic benefits associated with the expenditure will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance costs are expensed when incurred. When part of an investment property is replaced, the carrying amount of the replaced part is derecognised.

3.8 Property, plant and equipment

Land and land improvement is stated at cost less allowance for impairment. Plant and equipment are initially recorded at cost and subsequently stated at historical cost less accumulated depreciation. Costs include directly attributable expenses in acquiring such asset.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are recognised in the statement of profit or loss during the financial period in which they are incurred.

Land and land improvement is not depreciated.

Depreciation on other assets is calculated on the straight-line method or units of production to allocate their costs to their residual values over their estimated useful life, as follows:

Buildings and building improvements	20 - 40 years
Machinery and pipes	20 - 30 years
Other machinery	Unit of production
Tools and factory equipment	10 years
Furniture, fixtures and office equipment	5 - 10 years
Vehicles	5 - 10 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of the reporting period.

The asset's carrying amount is written-down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount (Note 3.10).

Gains or losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised as other income in the statement of profit or loss.

3.9 Intangible assets

Intangible assets are dredging expenses and computer software which are stated at cost less accumulated amortisation and impairment loss.

Dredging expenses is expenditure paid to prepare the undersea area around the jetty.

Intangible assets of the Group are definite life assets which are amortised on a straight-line basis over the estimated useful lives of the assets. Amortisation is recognised in the statement of profit or loss.

Dredging expenses	10 - 20 years
Computer software	5 - 10 years

3.10 Impairment of assets

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. The impairment loss is recognised in profit or loss.

Calculation of recoverable amount

The recoverable amount of a non-financial asset is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

Reversals of impairment

An impairment loss in respect of goodwill is not reversed.

Impairment losses recognised in prior periods in respect of other non-financial assets are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

3.11 Leases

a) Policies applicable from January 1, 2020

● The Group as lessee

The Group assesses whether a contract is or contains a lease, at inception of the contract. The Group recognises a right-of-use asset and corresponding lease liability with respect to all lease arrangements in which it is the lease, except for short-term leases with a lease term of 12 months or less and leases of low value assets. For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the lease term and presents as an expense in the statement of income.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the interest rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate.

Lease payments included in the measurement of the lease liability comprise:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- Variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- Amount expected to be payable by the lease under residual value guarantees;
- Exercise price of purchase options, if the lease is reasonably certain to exercise the options; and
- Payments of penalties for terminating the lease, if the lease term reflects the lessee exercising an option to terminate the lease.

The lease liability is subsequently measured using the effective interest method and by reducing the carrying amount to reflect the lease payments made. The Group recognises interest from lease liability in the statement of income.

The Group remeasures the lease liability (and makes a corresponding adjustment to the related right-of-use asset) whenever:

- The lease term has been changed resulting in a change in the assessment of exercise of a purchase option to purchase the underlying asset, in which case the lease liability is remeasured by discounting the revised lease payments using a revised discount rate.
- The lease payments have been changed due to changes in an index or a rate or a change in expected payment under a guaranteed residual value, in which cases the lease liability is remeasured by discounting the revised lease payments using an unchanged discount rate.
- A lease contract is modified and the lease modification that is not accounted for as a separate lease, in which case the lease liability is remeasured based on the lease term of the modified lease by discounting the revised lease payments using a revised discount rate at the effective date of the modification.

The right-of-use assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement day, less any lease incentives received and any initial direct costs. They are subsequently measured at cost less accumulated depreciation and accumulated impairment losses.

Right-of-use assets are depreciated over the shorter period of lease term and useful life of the underlying asset. If a lease transfers ownership of the underlying asset and the Group expects to exercise a purchase option, the related right-of-use is depreciated over the useful life of the underlying asset. The depreciation starts at the commencement date of the lease. In addition, the right-of-use assets are assessed for impairment in accordance with TAS 36 “Impairment of assets”.

- The Group as lessor

Leases for which the Group is a lessor are classified as operating leases.

Rental income from operating leases is recognised on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognised on a straight-line basis over the lease term.

b) Policies applicable prior to January 1, 2020

Leases - where the Group is the lessee

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are recognised in the statement of profit or loss on a straight-line basis over the period of the lease.

Leases - where the Group is the lessor

Assets leased out under operating leases are included in property, plant and equipment in the statement of financial position. They are depreciated over their expected useful lives on a basis consistent with other similar property, plant and equipment owned by the Group. Rental income (net of any incentives given to lessees) is recognised on a straight-line basis over the lease term.

3.12 Borrowings and debentures

Borrowings and debentures are recognised initially at the fair value, net of transaction costs incurred. Borrowings and debentures are subsequently stated at amortised cost using the effective yield method; any difference between proceeds (net of transaction costs) and the redemption value is recognised in the statement of profit or loss over the period of the borrowings.

Fees paid on the establishment of loan facilities are recognised as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the draw-down occurs. To the extent that there is no evidence that it is probable that some or all of the facility will be drawn down, the fee is capitalised as a pre-payment for liquidity services and amortised over the period of the facility to which it relates.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the end of reporting period.

3.13 Borrowings costs

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalisation.

All other borrowing costs are recognised as expenses in the period in which they are incurred.

3.14 Current and deferred income taxes

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case the tax is also recognised in other comprehensive income or directly in shareholders' equity, respectively.

The current income tax charge is calculated based on taxable profit using the tax laws enacted or substantively enacted at the end of reporting period in the countries where the Group operates and generates taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised in full amount, using the liability method, on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements.

Deferred tax assets are generally recognised for temporary differences to the extent that it is probable that taxable profits will be available against which those temporary differences can be utilized. The carrying amount of a deferred tax assets is reviewed at the end of each reporting period. Deferred tax assets shall be reduced to the extent that utilized taxable profits decreased. Any such reduction shall be reversed to the extent that it becomes probable that sufficient taxable profit will be available to allow total or part of the deferred tax assets to be recovered.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

3.15 Employee benefits

The Group has both defined contribution plans and defined benefit. A defined contribution plan is a pension plan under which the Group pays fixed contributions into a separate entity. The Group has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. A defined benefit plan is a pension plan that is not a defined contribution plan. Typically defined benefit plans define an amount of pension benefit that an employee will receive on retirement, usually dependent on one or more factors such as age, years of service and compensation.

- Defined contribution plans

- Provident fund

The Group pays contributions to a separate fund which is managed by an external fund manager in accordance with the provident fund Act. B.E. 2530. The Group has no further payment obligations once the contributions have been paid. The contributions are recognised as employee benefit expense when they are due.

- Defined benefit plans

- Retirement benefits

Under Labour Laws applicable in Thailand and the Group's employment policy, all employees completing 120 days of service are entitled to severance pay on termination or retrenchment without cause or upon retirement age of 60. The severance pay will be at the rate according to number of years of service as stipulated in the Labour Law which is currently at a maximum rate of 400 days of final salary. In addition, the Group has a policy to reward gold to the employees upon retirement.

- Other long-term benefits

The Group has a policy to reward gold to employees who have provided their services to the Group at their 10, 20 and 30 year anniversaries.

The liability recognised in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period together with adjustments for unrecognised past-service costs. The defined benefit obligation is calculated by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using market yield of government bonds that have terms to maturity approximating to the terms of the related pension liability. The estimated future cash flows shall reflect employee salaries, turnover rate, mortality rate, length of service and others.

Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to other comprehensive income in the period in which they arise.

Past-service costs are recognised immediately in the statement of profit or loss.

Past-service costs related to plan amendment is recognised as expense in the statement of profit or loss when the plan amendment is effective.

3.16 Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount can be made. Where the Group expects a provision to be reimbursed, the reimbursement is recognised as a separate asset but only when the reimbursement is virtually certain.

3.17 Treasury stock

Treasury stock is presented in the consolidated statement of financial position at cost and presented as a deduction from total shareholders' equity. Gains on disposal of treasury stock are determined by referring to its carrying amount and are taken to "Premium on treasury stock". Losses on disposal of treasury stock are determined by referring to its carrying amount and are taken to "Premium on treasury stock" and "Retained earnings" consecutively.

3.18 Revenue recognition

Revenues from sales and services

Revenue comprises the fair value of the consideration received or receivable for the sale of goods and service in the ordinary course of the Group's activities including excise tax, municipal tax and oil fund. Revenue is shown net of returns, rebates and discounts, and after eliminating sales within the Group. Revenue from sales of goods is recognised when control of the goods has transferred to the customer, being at the point the goods are delivered to the customer. Revenues from rendering of services is recognised as a performance obligation satisfied at a point in time when services underlying the particular performance obligation is transferred to the customer.

Interest and dividend income

Interest income is recognised using the effective interest method. Dividends are recognised when the right to receive payment is established.

Other income

Other income is recognised in the statement of profit or loss on an accrual basis.

3.19 Dividends payment

Dividends are recorded in the consolidated and separate financial statements in the period in which they are approved by the shareholders of the Group. Interim dividends are recorded in the consolidated and separate financial statements in the period in which they are approved by the Board of directors' of the Group.

3.20 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as Chief Executive Officer that makes strategic decisions.

Segment information is presented in respect of the Group's business segments which is based on the Group's management and internal reporting structure (see Note 6).

3.21 Fair value measurement for disclosure purpose

The Group regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the Group assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of TFRS 13, including the level in the fair value hierarchy.

When measuring the fair value of an asset or a liability, Group uses market observable data as the first priority. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques for fair value measurement as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date.
- Level 2 inputs are inputs, other than quoted prices included within Level 1, which are observable for the asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs for the asset or liability.

Fair value estimation of derivatives for disclosure information in the financial statements

The fair value of publicly traded derivatives is based on quoted market prices at the financial position date (Level 1). The fair value of forward foreign exchange contracts and the interest rate swap contracts is determined by the market rate of each agreement which is calculated by financial institutions dealing with the Group at the financial position date. The fair values of commodity derivatives are calculated by the offering selling and buying price quoted by the financial institutions of the Group at the financial position date. Details of fair values of derivative contracts are disclosed in Note 38.

3.22 Accounting for financial instruments

The Group shall recognise a financial asset or a financial liability in its statement of financial position only when the Group becomes party to the contractual provisions of the instrument. Regular way of purchases and sales of financial assets are recognised on trade-date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognised only when the rights to receive cash flows from the financial assets have expired or when the Group has transferred the financial assets which transferred substantially all the risks and rewards of ownership of the financial assets.

Recognition, Measurement and Classification of financial assets

At initial recognition, the Group measures a financial asset as follows:

- A financial asset measured at amortised cost and a financial asset measured at fair value through other comprehensive income are measured at their fair value, plus transaction costs that are directly attributable to the acquisition or issuance of the financial assets.
- A financial asset measured at fair value through profit or loss is measured at its fair value. Transaction costs are expensed in profit or loss.

Subsequent measurement of financial assets depends on the Group's business model for managing the financial asset and the cash flow characteristics of the financial assets. There are three measurement categories into which the Group classifies its financial assets:

- Amortised cost - A financial asset will be measured at amortised cost when the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows. In addition, the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding. Interest income from these financial assets is using the effective interest rate method. Any gain or loss arising on derecognition is recognised directly in profit or loss and impairment losses are presented in profit or loss.
- Fair value through other comprehensive income (FVTOCI) - A financial asset will be measured at FVTOCI when it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets. In addition, the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment losses and interest income using effective interest rate method. When the financial asset is derecognised, the cumulative gain or loss previously recognised in other comprehensive income is reclassified to profit or loss or retained earnings.
- Fair value through profit or loss (FVTPL) - A financial asset that does not meet the criteria for amortised cost or FVTOCI are measured at FVTPL.

Impairment

The Group assesses on a forward-looking basis the expected credit loss associated with its financial assets carried at amortised cost. The Group applies simplified approach for credit-impaired consideration which depends on the significant of credit risk.

In determining allowance of expected credit loss, the financial asset is considered to have low credit risk and no significant incremental of credit risk since initial recognition. The Group will not recognise any allowance of expected credit loss.

Reversals of impairment

An impairment loss in respect of a financial asset is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised in profit or loss.

Derecognition of financial assets

The Group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity.

On derecognition of a financial asset measured at amortised cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognised in profit or loss. In addition, on derecognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on derecognition of an investment in equity instrument which the Group has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

Recognition, Measurement and Classification of financial liabilities

Financial instruments issued by the Group must be classified as financial liabilities or equity instruments by considering contractual obligations.

- Where the Group has an unconditional contractual obligation to deliver cash or another financial asset to another entity and is unable to deny or avoid the settlement of the obligation indefinitely, it is considered a financial liability.
- Where the Group has no contractual obligation or has an unconditional right to avoid the settlement of the obligation, it is considered an equity instrument.

At initial recognition, the Group measures financial liabilities, which are not measured at FVTPL, at fair value minus transaction costs that are directly attributable to the acquisition or issuance of the financial assets. The Group classifies all financial liabilities as subsequently measured at amortised cost, except for some financial liabilities.

Derecognition of financial liabilities

The Group derecognises financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit or loss.

When the Group exchanges with the existing lender one debt instrument into another one with the substantially different terms, such exchange is accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Similarly, the Group accounts for substantial modification of terms of an existing financial liability or part of it as an extinguishment of the original financial liability and the recognition of a new financial liability. It is assumed that the terms are substantially different if the discounted present value of the cash flows under the new terms, including any fees paid net of any fees received and discounted using the original effective date is at least 10 percent different from the discounted present value of the remaining cash flows of the original financial liability. If the modification is not substantial, the difference between; (1) the carrying amount of the liability before the modification; and (2) the present value of cash flows after modification should be recognised in profit or loss as the modification gain or loss within other gains and losses.

Derivatives

The Group is a party to derivatives, which mainly comprise foreign currency forward contracts, interest rate swap contracts, and commodity derivative contracts. Such financial instruments are recognised initially at fair value; attributable transaction costs are recognised in profit or loss when incurred. Subsequent to initial recognition, they are remeasured at fair value. The gain or loss on remeasurement is recognised immediately in profit or loss.

The fair value of swap contracts is based on broker quotes at the reporting date. Those quotes are tested for reasonableness by discounting estimated future cash flows based on the terms and maturity of each contract and using market interest rates for a similar instrument at the reporting date.

The fair value of forward exchange contracts is based on their listed market price as the reporting date, if available. If the listed market price is not available, then fair value is estimated by forward contract with the same nature and maturity date at the reporting date.

3.23 Basic earnings (loss) per share

Basic earnings (loss) per share are calculated by dividing the profit (loss) attributable to owner of the parent by the weighted average number of ordinary shares outstanding during the year less shares of the parent held by a subsidiary excluding treasury shares.

4. CRITICAL ACCOUNTING ESTIMATES AND JUDGMENTS

The Group makes estimates and assumptions concerning the future. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are outlined below.

4.1 Allowance for diminution in value of inventories

Net realizable value is calculated based on the estimated selling prices by management in the ordinary course of business less the estimated costs of completion and the necessary costs to make the sale.

4.2 Calculation of recoverable amount

In the calculation of recoverable amount, the Group's management estimated the future cash flows discounted to their present value using an appropriate discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

4.3 Recognition of deferred tax assets

The recognition of deferred tax assets is based upon whether it is probably that sufficient taxable profits will be available in the future against which the reversal of temporary differences can be deducted which involves judgement regarding the future financial performance of the Group.

4.4 Employee benefits

The present value of the defined benefit plans depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used include the discount rate, salary increase rate and turnover. Any changes in these assumptions will have an impact on the carrying amount the employee benefit obligations. Additional information is disclosed in Note 24.

5. SUPPLEMENTARY DISCLOSURE OF CASH FLOWS INFORMATION

5.1 Accounts payable - acquisition of fixed assets for the years ended December 31, are as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2020	2019	2020	2019
Accounts payable - acquisition of fixed assets brought forward ⁽¹⁾	487	2,175	487	2,175
<u>Add</u> Purchase of fixed assets (net of capitalised borrowing costs)	3,179	4,262	3,137	4,154
<u>Less</u> Cash payment	(3,313)	(5,950)	(3,274)	(5,842)
Accounts payable - acquisition of fixed assets carried forward ⁽¹⁾	353	487	350	487

- ⁽¹⁾ Accounts payable - acquisition of fixed assets has been presented including in other payables in the statements of financial position as at December 31, 2020 and 2019.

5.2 Reconciliation of liabilities arising from financing activities

The table below details changes in the liabilities arising from financing activities, including both cash and non-cash changes.

As at December 31, 2020

Unit : Million Baht

	Consolidated financial statements								Balance as at December 31, 2020
	Balance as at January 1, 2020	Financing cash flows	Non-cash changes						
			Interest expense	Interest expense capitalised as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures	Lease liabilities - net	(Gain) Loss on exchange rate and net derivatives	
Accrued interest expense	104	(1,799)	1,853	52	-	-	-	-	210
Short-term borrowings from financial institutions	6,900	(6,900)	-	-	-	-	-	-	-
Derivative liabilities	-	(380)	-	-	-	-	-	534	154
Long-term borrowings from financial institutions and debentures	52,071	9,816	-	-	46	2	-	(4)	61,931
Lease liabilities	299	(129)	-	-	-	-	19	-	189
	59,374	608	1,853	52	46	2	19	530	62,484

As at December 31, 2019

Unit : Million Baht

	Balance as at January 1, 2019	Financing cash flows	Consolidated financial statements					Balance as at December 31, 2019
			Interest expense	Interest expense capitalised as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures	Gain on exchange rate	
Accrued interest expense	125	(2,055)	1,893	141	-	-	-	104
Short-term borrowings from financial institutions	6,700	200	-	-	-	-	-	6,900
Financial derivative contracts	-	969	-	-	-	-	(969)	-
Long-term borrowings from financial institutions and debentures	50,666	1,824	-	-	37	2	(458)	52,071
Total	57,491	938	1,893	141	37	2	(1,427)	59,075

As at December 31, 2020

Unit : Million Baht

	Balance as at January 1, 2020	Financing cash flows	Interest expense	Interest expense capitalised as part of fixed assets	Separate financial statements Non-cash changes				Balance as at December 31, 2020
					Amortisation of deferred financing fees	Amortisation of discount on debentures	Lease liabilities - net	(Gain) Loss on exchange rate and net derivatives	
Accrued interest expense	104	(1,799)	1,853	52	-	-	-	-	210
Short-term borrowings from financial institutions	6,900	(6,900)	-	-	-	-	-	-	-
Derivative liabilities	-	(380)	-	-	-	-	-	534	154
Long-term borrowings from financial institutions and debentures	52,071	9,816	-	-	46	2	-	(4)	61,931
Lease liabilities	288	(125)	-	-	-	-	16	-	179
	<u>59,363</u>	<u>612</u>	<u>1,853</u>	<u>52</u>	<u>46</u>	<u>2</u>	<u>16</u>	<u>530</u>	<u>62,474</u>

As at December 31, 2019

Unit : Million Baht

	Balance as at January 1, 2019	Financing cash flows	Interest expense	Interest expense capitalised as part of fixed assets	Separate financial statements Non-cash changes			Balance as at December 31, 2019
					Amortisation of deferred financing fees	Amortisation of discount on debentures	Gain on exchange rate	
Accrued interest expense	125	(2,055)	1,893	141	-	-	-	104
Short-term borrowings from financial institutions	6,700	200	-	-	-	-	-	6,900
Financial derivative contracts	-	969	-	-	-	-	(969)	-
Long-term borrowings from financial institutions and debentures	50,666	1,824	-	-	37	2	(458)	52,071
Total	<u>57,491</u>	<u>938</u>	<u>1,893</u>	<u>141</u>	<u>37</u>	<u>2</u>	<u>(1,427)</u>	<u>59,075</u>

6. SEGMENT INFORMATION

Segment information is presented in respect of the Group's business segments which are based on the Group's management and internal reporting structure.

The Group's main business segments are:

Petroleum products:	Refinery, lubricant, asphalt
Petrochemical products:	Olefins, aromatics and related products including special products
Other business segments:	Power plant, jetty and other utilities

The accounting policies for the operating segments are described in the summaries significant accounting policies.

	Unit : Million Baht			
	Consolidated financial statements			
	Petroleum products	Petrochemical products	Other businesses	Total
For the year ended December 31, 2020				
Revenues from sales and services	122,152	47,457	4,854	174,463
Profit (loss) from operating segments	(5,125)	(514)	1,379	(4,260)
Unallocated other expenses				(1,855)
Profit (loss) from operations				(6,115)
Finance costs				(1,902)
Share of profit on investments in joint ventures and associates				333
Income tax expense				1,554
Profit (loss) for the year				(6,130)

	Unit : Million Baht				
	Consolidated financial statements				
	Petroleum products	Petrochemical products	Other businesses	Elimination entries	Total
As at December 31, 2020					
Segment fixed assets	54,129	29,967	13,711	181	97,988
Unallocated fixed assets					16,563
Segment other assets	22,858	7,512	4,252	(338)	34,284
Unallocated other assets					24,656
Consolidated total assets					173,491

	Unit : Million Baht			
	Consolidated financial statements			
	Petroleum products	Petrochemical products	Other businesses	Total
For the year ended December 31, 2019				
Revenues from sales and services	174,996	59,656	4,663	239,315
Profit (loss) from operating segments	(4,085)	459	1,022	(2,604)
Unallocated other incomes				2,248
Profit (loss) from operations				(356)
Finance costs				(1,931)
Share of profit on investments in joint ventures and associates				363
Income tax expense				779
Profit (loss) for the year				(1,145)

Unit : Million Baht

	Consolidated financial statements				Total
	Petroleum products	Petrochemical products	Other businesses	Elimination entries	
As at December 31, 2019					
Segment fixed assets	56,976	31,797	14,655	143	103,571
Unallocated fixed assets					17,498
Segment other assets	27,514	8,782	3,436	(433)	39,299
Unallocated other assets					17,482
Consolidated total assets					<u>177,850</u>

Geographic information

The Group's revenue from sales from external customers are reported by the geographical information as follows:
In addition, non-current assets of the Group are located in Thailand.

Country's name	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
Thailand	115,713	150,434	114,688	149,295
Singapore	21,973	41,089	21,973	41,089
Others	36,777	47,792	36,775	47,790
Total	<u>174,463</u>	<u>239,315</u>	<u>173,436</u>	<u>238,174</u>

Major customers

The Group's sales and service revenues mainly comprise revenue from one customer of petroleum products and other business segment for the year ended December 31, 2020 representing 24,102 million (2019 : Baht 26,830 million).

7. CASH AND CASH EQUIVALENTS

Cash and cash equivalents as at December 31, consist of the following:

	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
Cash on hand	1	1	-	-
Bank deposits in current accounts	1,103	69	1,103	70
Bank deposits in savings accounts	7,747	2,966	7,450	2,694
Total cash and cash equivalents	<u>8,851</u>	<u>3,036</u>	<u>8,553</u>	<u>2,764</u>

As at December 31, 2020, bank deposits in current accounts and savings accounts bear interest at rates between 0.05% to 0.50.% per annum (2019 : 0.1% to 1.0% per annum). Cash and cash equivalents are mainly in Thai Baht.

8. TRADE RECEIVABLES

Trade receivables as at December 31, consist of the following:

Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Trade receivables				
- Other parties	6,016	5,683	5,868	5,578
- Related parties	37 (b) 3,640	4,449	3,865	4,598
Total	9,656	10,132	9,733	10,176
<u>Less</u> Allowance for expected credit losses	(30)	-	(22)	-
<u>Less</u> Allowance for doubtful accounts	-	(32)	-	(22)
Total trade receivables	9,626	10,100	9,711	10,154

Aging analysis of trade receivables is as follows:

Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Other parties				
Current	5,272	5,259	5,137	5,166
Overdue				
- less than 3 months	714	390	708	389
- over 3 months but less than 6 months	-	7	1	1
- over 6 months but less than 12 months	2	1	-	-
- over 12 months	28	26	22	22
	744	424	731	412
	6,016	5,683	5,868	5,578
<u>Less</u> Allowance for expected credit losses	(30)	-	(22)	-
<u>Less</u> Allowance for doubtful accounts	-	(32)	-	(22)
Total trade receivables from other parties	5,986	5,651	5,846	5,556
Related parties				
Current	3,628	4,023	3,838	4,181
Overdue				
- less than 3 months	12	417	27	408
- over 3 months but less than 6 months	-	-	-	-
- over 6 months but less than 12 months	-	9	-	9
- over than 12 months	-	-	-	-
	12	426	27	417
Total trade receivables from related parties	37 (b) 3,640	4,449	3,865	4,598
Total trade receivables	9,626	10,100	9,711	10,154

Normal credit term of trade receivables is determined at 7 days to 120 days.

The Group always measures the loss allowance for trade receivables at an amount equal to lifetime ECL. The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position. In case, the Group measures the loss allowance to Simplified ECL. The Group has recognised a loss allowance of 100% against all receivables over 180 days past due because historical experience has indicated that these receivables are generally not recoverable.

The Group has been no significant changed in estimation and assumption method in current financial position.

The following table details the risk profile of trade receivables based on the Group's provision matrix. As the Group's historical credit loss experience does not show significantly different loss patterns for different customer segments, the provision for loss allowance based on past due status is not further distinguished between the Group's different customer segments.

						Unit : Million Baht
As at December 31, 2020	Consolidated financial statements					Total
	Trade receivables - days past due					
	Not past due	< 90 days	91 - 180 days	180 - 360 days	> 360 days	
Expected credit loss rate	0%	0%	5.32%	100%	100%	
Estimated total gross carrying amount at default	8,900	726	-	2	28	9,656
Allowance for expected credit losses	-	-	-	(2)	(28)	(30)
						9,626

Unit : Million Baht						
As at December 31, 2020	Separate financial statements Trade receivables - days past due					Total
	Not past due	< 90 days	91 - 180 days	180 - 360 days	> 360 days	
Expected credit loss rate	0%	0%	5.32%	100%	100%	
Estimated total gross carrying amount at default	8,975	735	1	-	22	9,733
Allowance for expected credit losses	-	-	-	-	(22)	(22)
						9,711

The following table shows the movement in lifetime expected credit losses that has been recognised for trade receivables in accordance with the simplified approach set out in TFRS 9.

Unit : Million Baht		
	Consolidated financial statements	Separate financial statements
	2020	2019
Balance at beginning of the year	32	22
Losses on allowance for expected credit losses	1	-
Amounts recovered during the year	(3)	-
Balance at ending of the year	<u>30</u>	<u>22</u>

9. OTHER RECEIVABLES

Other receivables as at December 31, consist of the following:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2020	2019	2020	2019
Receivables from excise department and oil fund	1,373	619	1,373	619
Others	213	963	211	962
Total other receivables	<u>1,586</u>	<u>1,582</u>	<u>1,584</u>	<u>1,581</u>

10. INVENTORIES

Inventories as at December 31, consist of the following:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2020	2019	2020	2019
Raw materials	3,614	4,674	3,614	4,674
Work in process	13	14	13	14
Finished goods	10,830	13,680	10,599	13,446
Chemicals and fuel oil	1,025	994	1,008	982
Spare parts and repair materials	2,516	2,780	2,514	2,779
Goods in transit	4,112	5,083	4,112	5,083
<u>Less</u> Transfer to property, plant and equipment	-	(317)	-	(317)
<u>Less</u> Allowance for diminution in value and obsolescence of inventories	(941)	(913)	(940)	(913)
Total inventories	<u>21,169</u>	<u>25,995</u>	<u>20,920</u>	<u>25,748</u>

According to the Ministry of Energy's regulations, the Company is required to reserve crude oil at 4% of commercial volume and liquid petroleum gas and petroleum products at 1% of the total production output in each period. As at December 31, 2020, the inventories presented in the consolidated and separate financial statements included minimum mandatory reserve on crude oil, liquid petroleum gas, and petroleum products amounting to Baht 2,568 million and Baht 2,571 million, respectively (as at December 31, 2019 : Baht 5,384 million and Baht 5,381 million in the consolidated and separate financial statements, respectively), which were net amount of allowance for diminution in value and obsolescence of inventories.

The cost of inventories recognised as expense and included in cost of sales amounting to Baht 149,271 million and Baht 148,780 million in the consolidated and separate statements of profit or loss, respectively (2019 : Baht 211,052 million and Baht 210,466 million in the consolidated and separate statements of profit or loss, respectively).

As at December 31, 2020, inventories are presented net of allowance for diminution in value and obsolescence of inventories amounting to Baht 941 million and Baht 940 million in the consolidated and separate financial statements, respectively (2019 : Baht 913 million in the consolidated and separate statements of financial position). During the year 2020, the allowance for diminution in value and obsolescence of inventories amounting to Baht 27 million and Baht 28 million has been reversed and recognised in the consolidated and separate statements of profit or loss, respectively (2019 : Baht 595 million in the consolidated and separate statements of profit or loss).

11. OTHER NON-CURRENT FINANCIAL ASSETS AND OTHER LONG-TERM INVESTMENTS

Movements of other non-current financial assets and other long-term investments for the year ended December 31, 2020 are as follows

	Unit : Million Baht			
	Consolidated financial statements			
	General investments	Available for sale investments	Total other long-term investments	Other non-current financial assets
Opening net book amount	1,626	41	1,667	-
The effects from first-time adoption of new accounting policies	5	-	5	-
Reclassification to other non-current financial assets	(1,631)	(41)	(1,672)	1,672
Changes in fair value through other comprehensive income	-	-	-	20
Closing net book amount	-	-	-	1,692

	Unit : Million Baht			
	Separate financial statements			
	General investments	Available for sale investments	Total other long-term investments	Other non-current financial assets
Opening net book amount	1,625	41	1,666	-
The effects from first-time adoption of new accounting policies	5	-	5	-
Reclassification to other non-current financial assets	(1,630)	(41)	(1,671)	1,671
Changes in fair value through other comprehensive income	-	-	-	20
Closing net book amount	-	-	-	1,691

Other non-current financial assets as at December 31, 2020 are as follow:

	Consolidated financial statements	Unit : Million Baht Separate financial statements
Other non-current financial assets designated as at fair value through other comprehensive income	1,639	1,638
Other non-current financial assets measured at fair value through other comprehensive income	53	53
Total other non-current financial assets	1,692	1,691

Other long-term investments as at December 31, 2019 can be summarised as follows:

	<u>% of investment</u>	<u>Consolidated financial statements</u>	<u>Unit : Million Baht Separate financial statements</u>
Investments with the former management and the entities relating to the former management			
Pornchai Enterprise Co., Ltd.	23.65	1,119	1,117
TPI EOEG Co., Ltd.	36.31	829	829
TPI Holding Co., Ltd.	35.00	1,416	1,416
Thai Special Steel Industry Plc.	16.24	673	673
		<u>4,037</u>	<u>4,035</u>
<u>Less</u> Allowance for impairment		<u>(3,037)</u>	<u>(3,036)</u>
		<u>1,000</u>	<u>999</u>
General investments - others		626	626
Investments in equity securities listed on the stock exchange		67	67
<u>Less</u> Allowance for impairment		<u>(26)</u>	<u>(26)</u>
		<u>667</u>	<u>667</u>
Total other long-term investments		<u>1,667</u>	<u>1,666</u>

12. INVESTMENTS IN SUBSIDIARIES, JOINT VENTURES AND ASSOCIATES

Movements of investments in subsidiaries, joint ventures and associates for the years ended December 31, are as follows:

	<u>Consolidated financial statements</u>		<u>Unit : Million Baht Separate financial statements</u>	
	<u>2020</u>	<u>2019</u>	<u>2020</u>	<u>2019</u>
Opening net book amount	8,257	7,799	8,736	8,597
Increase in investment in joint ventures and an associate ¹⁾	528	195	528	195
Increase in investment in a subsidiary ²⁾	-	-	-	61
Sales of investment in a subsidiary ³⁾	-	-	-	(1)
Loss on impairment of investment in a joint venture	-	-	-	(77)
Reversal of impairment of investment in a subsidiary ⁴⁾	-	-	718	-
Disposal of investment in a subsidiary ⁵⁾	-	-	-	(39)
Dividend received from a joint venture and associates	(443)	(99)	-	-
Share of profit on investments in joint ventures and associates	333	363	-	-
Share of other comprehensive income (loss) on investment in associates	9	(1)	-	-
Closing net book amount	<u>8,684</u>	<u>8,257</u>	<u>9,982</u>	<u>8,736</u>

- 1) During 2019, WHA Industrial Estate Rayong Company Limited called for the additional paid-up at 75% amounting to Baht 487.5 million. The Company paid for additional paid-up share capital of Baht 195 million on September 9, 2019.

On July 20, 2020, the Extra Ordinary General Meeting of shareholders of WHA Industrial Estate Rayong Company Limited. (“WHAIER”) passed a resolution to increase the registered share capital from Baht 650 million to be Baht 710 million by issuing new 6 million ordinary shares at par value of Baht 10 each totaling Baht 60 million. WHAIER called for paid-up share capital of 25% and the Company paid the share capital increase for the investment in joint venture of Baht 6 million on July 30, 2020.

During 1st quarter 2020, IRPC Clean Power Company Limited, which is an associate of the Company, called for the additional paid-up at Baht 0.83 per share. The Company paid for additional paid-up share capital at the same proportion of investment of Baht 137 million.

On June 2, 2020, the Annual General Meeting of shareholders of IRPC Polyol Company Limited passed a resolution to increase the registered share capital from Baht 300 million to be Baht 370 million by issuing new 0.7 million ordinary shares at par value of Baht 100 each totaling Baht 70 million. The Company paid the share capital increase for the investment in joint venture of Baht 35 million on July 9, 2020.

During 3rd quarter of 2020, investment in a joint venture increased from investment in Mytex Polymers (Thailand) Company Limited. On March 3, 2020, the Company entered into the Share Purchase Agreement with Japan Polypropylene Corporation, incorporated in Japan to acquire 600,000 ordinary shares (50 percent of the registered share capital of 1.2 million shares totaling Baht 120 million) of Mytex Polymers (Thailand) Co., Ltd., incorporated in Thailand, which operates petrochemical business at the price of Baht 350 million. The Company paid for share acquisition to Japan Polypropylene Corporation on July 30, 2020.

- 2) On July 19, 2019, the Board of Director of iPolymer Company Limited passed a resolution to increase the registered share capital from Baht 5 million to be Baht 120 million by issuing new 11.5 million ordinary shares at par value of Baht 10 each totaling Baht 115 million. In August 2019, the Company executed a partial right for this increase share capital by additionally paid of Baht 61 million that result to the percentage of shareholding has been changed to 55%. The remaining shares of 45% is held by Guangzhou Saiju Performance Polymer Ltd. (“GZSJ”) incorporated in the People’s Republic of China.
- 3) On December 26, 2019, the Company sold shares of IRPC A&L Company Limited by 2.5% to another shareholder at selling price of Baht 3.96 million (cost at Baht 0.6 million) which there was gain on sales of investment of Baht 3.37 million. As a result, the percentage of shareholding has been changed to 57.48%.
- 4) During 2020, the Company recognised reversal of impairment of investment in IRPC Oil Company Limited in amount of Baht 718 million in the separate financial statements because the impairment review showed that the recoverable amount of such investment exceeded its carrying amount.
- 5) On April 25, 2019, the Extraordinary General Meeting No. 1/2019 of shareholders of Thai ABS Co., Ltd. (“Thai ABS”) passed a resolution to dissolve the business, register the completion on dissolution and return the capital investment and share profit to the shareholders. The Company received the capital refund from Thai ABS of Baht 276.61 million and disposed the investments in a subsidiary of Baht 39 million in the second quarter of 2019. In addition, the Company recognised the share of profit from dissolution of such subsidiary of Baht 237 million in the separate statements of profit or loss for the year ended December 31, 2019.

a) Details of investments in subsidiaries, joint ventures and associates in the separate financial statements as at December 31, are as follows:

	Business type	Separate financial statements										Unit : Million Baht			
		Ownership interest (%)		Paid-up capital		Cost method		Impairment		Net				Dividend income	
		2020	2019	2020	2019	2020	2019	2020	2019	2020	2019			2020	2019
Subsidiaries															
IRPC Oil Company Limited IRPC Technology Company Limited IRPC A&L Company Limited	Sales of oil products and gas	99.99	99.99	2,000	2,000	2,000	2,000	-	(718)	2,000	1,282	-	42		
	Vocational school	99.99	99.99	750	750	750	750	(476)	(476)	274	274	-	-		
	Distributing of petrochemical products	57.48	57.48	10	10	14	14	-	-	14	14	39	45		
iPolymer Company Limited	Distributing of plastic resin and chemical products via E-Commerce system	55.00	55.00	120	120	66	66	-	-	66	66	-	-		
Total investments in subsidiaries															
						2,830	2,830	(476)	(1,194)	2,354	1,636	39	87		
Joint Ventures															
WHA Industrial Estate Rayong Co., Ltd. IRPC Polyol Company Limited	Industrial estate development	40.00	40.00	665	650	266	260	-	-	266	260	-	-		
	Manufacturing and sales of chemical products for polyurethanes	50.00	50.00	370	300	185	150	(150)	(150)	35	-	-	-		
	Manufacturing and sales of chemical products	50.00	-	120	-	350	-	-	-	350	-	23	-		
Total investments in joint ventures															
						801	410	(150)	(150)	651	260	23	-		
Associates															
PTT Energy Solutions Co., Ltd. UBE Chemicals (Asia) Public Co., Ltd. IRPC Clean Power Co., Ltd.	Engineering consulting	20.00	20.00	150	150	30	30	-	-	30	30	-	-		
	Manufacturing and sales of petrochemical products	25.00	25.00	10,739	10,739	5,300	5,300	-	-	5,300	5,300	-	99		
	Manufacturing and sales of electricity and steam	48.99	48.99	3,362	3,083	1,647	1,510	-	-	1,647	1,510	420	-		
Total investments in associates															
						6,977	6,840	-	-	6,977	6,840	420	99		

b) Details of investments in joint ventures and associates in the consolidated financial statements as at December 31, are as follows:

	Consolidated financial statements						Unit : Million Baht	
	Paid-up share capital		Cost method		Equity method		Dividend income	
	2020	2019	2020	2019	2020	2019	2020	2019
Joint Ventures								
WHA Industrial Estate Rayong Co., Ltd.	665	650	266	260	260	257	-	-
IRPC Polyol Co., Ltd.	370	300	185	150	25	-	-	-
Mytex Polymers (Thailand) Co., Ltd.	120	-	350	-	327	-	23	-
			801	410	612	257	23	-
Associates								
PTT Energy Solutions Co., Ltd.	150	150	30	30	40	35	-	-
UBE Chemicals (Asia) Public Co., Ltd.	10,739	10,739	5,300	5,300	4,708	4,915	-	99
IRPC Clean Power Co., Ltd.	3,362	3,083	1,647	1,510	3,324	3,050	420	-
			6,977	6,840	8,072	8,000	420	99

Reconciliation of summarised financial information

Reconciliation of the summarised financial information presented to the carrying amount of its interest in the associates.

Summarised financial Information for the years ended December 31, is as follows:

	UBE Chemicals (Asia) Public Co., Ltd.		Unit : Million Baht IRPC Clean Power Co., Ltd.	
	2020	2019	2020	2019
Opening net assets at January 1,	13,316	13,961	5,867	4,799
Dividend paid during the years	-	(407)	(857)	-
Legal reserve during the years	-	-	183	-
Net profit (loss) during the years	(872)	(238)	1,156	1,068
Closing net assets at December 31,	<u>12,444</u>	<u>13,316</u>	<u>6,349</u>	<u>5,867</u>
Interest in associates (%)	25.00	25.00	48.99	48.99
Carrying value at December 31,	3,111	3,329	3,110	2,874

13. INVESTMENT PROPERTY

Investment property as at December 31, consists of:

As at December 31, 2020

	Unit : Million Baht Consolidated financial statements			
	Balances as at January 1, 2020	Additions	Disposals	Balances as at December 31, 2020
Cost				
Land	986	-	-	986
Buildings	18	-	-	18
Total cost	<u>1,004</u>	<u>-</u>	<u>-</u>	<u>1,004</u>
Accumulated depreciation				
Buildings	(18)	-	-	(18)
Total accumulated depreciation	<u>(18)</u>	<u>-</u>	<u>-</u>	<u>(18)</u>
<u>Less</u> Allowance for impairment	<u>(64)</u>	<u>-</u>	<u>-</u>	<u>(64)</u>
Total investment property	<u>922</u>			<u>922</u>

As at December 31, 2019

	Unit : Million Baht Consolidated financial statements			
	Balances as at January 1, 2019	Additions	Disposals	Balances as at December 31, 2019
Cost				
Land	1,444	6	(464)	986
Buildings	18	-	-	18
Total cost	<u>1,462</u>	<u>6</u>	<u>(464)</u>	<u>1,004</u>
Accumulated depreciation				
Buildings	(18)	-	-	(18)
Total accumulated depreciation	<u>(18)</u>	<u>-</u>	<u>-</u>	<u>(18)</u>
<u>Less</u> Allowance for impairment	<u>(216)</u>	<u>-</u>	<u>152</u>	<u>(64)</u>
Total investment property	<u>1,228</u>			<u>922</u>

As at December 31, 2020	Unit : Million Baht			
	Separate financial statements			
	Balances as at January 1, 2020	Additions	Disposals	Balances as at December 31, 2020
Cost				
Land	938	-	-	938
<u>Less</u> Allowance for impairment	(52)	-	-	(52)
Total investment property	<u>886</u>			<u>886</u>

As at December 31, 2019	Unit : Million Baht			
	Separate financial statements			
	Balances as at January 1, 2019	Additions	Disposals	Balances as at December 31, 2019
Cost				
Land	1,396	6	(464)	938
<u>Less</u> Allowance for impairment	(197)	-	145	(52)
Total investment property	<u>1,199</u>			<u>886</u>

Amounts recognised in the statements of profit or loss that are related to investment property for the years ended December 31, are as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2020	2019	2020	2019
Rental income	30	29	30	29

The fair values of investment property as at December 31, are as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2020	2019	2020	2019
Land	1,140	996	1,104	960
Buildings	9	9	-	-
	<u>1,149</u>	<u>1,005</u>	<u>1,104</u>	<u>960</u>

14. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment as at December 31, are as follows:

Unit : Million Baht

As at December 31, 2020	Consolidated financial statements					Balances as at December 31, 2020
	Balances as at January 1, 2020	Additions	Disposal/ Write off	Transfers in (out)	Reclassification of assets	
Cost						
Land and land improvement	11,537	-	(15)	273	-	11,795
Buildings and building improvements	39,822	-	(2)	1,408	-	41,228
Machinery and pipes	147,509	279	(62)	3,223	-	150,949
Tools and factory equipment	3,325	111	(95)	107	-	3,448
Furniture, fixtures and office equipment	1,255	19	(105)	122	-	1,291
Vehicles	684	-	(3)	-	-	681
Total cost	204,132	409	(282)	5,133	-	209,392
Accumulated depreciation						
Buildings and building improvements	(18,324)	(1,359)	2	-	-	(19,681)
Machinery and pipes	(66,756)	(7,034)	36	-	-	(73,754)
Tools and factory equipment	(2,278)	(201)	95	-	-	(2,384)
Furniture, fixtures and office equipment	(958)	(99)	104	-	-	(953)
Vehicles	(598)	(20)	2	-	-	(616)
Total accumulated depreciation	(88,914)	(8,713)	239	-	-	(97,388)
Assets under construction and assets under installation	6,006	2,817	(520)	(5,133)	(13)	3,157
Less Allowance for impairment	(155)	(456)	-	-	-	(611)
Total property, plant and equipment	121,069					114,550

Unit : Million Baht

As at December 31, 2019	Consolidated financial statements					Balances as at December 31, 2020
	Balances as at January 1, 2019	Additions	Disposals/ Write off	Transfers in (out)	Transfers from inventory	
Cost						
Land and land improvement	11,537	-	-	-	-	11,537
Buildings and building improvements	39,029	25	(5)	773	-	39,822
Machinery and pipes	141,150	237	(299)	6,104	317	147,509
Tools and factory equipment	3,194	97	(40)	74	-	3,325
Furniture, fixtures and office equipment	1,199	55	(29)	30	-	1,255
Vehicles	691	7	(14)	-	-	684
Total cost	196,800	421	(387)	6,981	317	204,132
Accumulated depreciation						
Buildings and building improvements	(16,988)	(1,297)	2	(41)	-	(18,324)
Machinery and pipes	(60,173)	(6,834)	254	(3)	-	(66,756)
Tools and factory equipment	(2,122)	(196)	40	-	-	(2,278)
Furniture, fixtures and office equipment	(901)	(86)	29	-	-	(958)
Vehicles	(590)	(22)	14	-	-	(598)
Total accumulated depreciation	(80,774)	(8,435)	339	(44)	-	(88,914)
Assets under construction and assets under installation	9,003	3,984	-	(6,981)	-	6,006
Less Allowance for impairment	(292)	-	93	44	-	(155)
Total property, plant and equipment	124,737					121,069

Depreciation for the years ended December 31,

2020	Baht	8,713
2019	Baht	8,435

As at December 31, 2020	Unit : Million Baht				
	Separate financial statements				
	Balances as at January 1, 2020	Additions	Disposal/ Write off	Transfers in (out)	Balances as at December 31, 2020
Cost					
Land and land improvement	10,901	-	(15)	273	11,159
Buildings and building improvements	38,024	-	(3)	1,400	39,421
Machinery and pipes	147,171	280	(61)	3,219	150,609
Tools and factory equipment	2,478	111	(88)	104	2,605
Furniture, fixtures and office equipment	1,099	18	(97)	121	1,141
Vehicles	503	-	(2)	-	501
Total cost	200,176	409	(266)	5,117	205,436
Accumulated depreciation					
Buildings and building improvements	(16,891)	(1,350)	1	-	(18,240)
Machinery and pipes	(66,771)	(7,020)	34	-	(73,757)
Tools and factory equipment	(1,771)	(144)	88	-	(1,827)
Furniture, fixtures and office equipment	(878)	(88)	97	-	(869)
Vehicles	(421)	(18)	2	-	(437)
Total accumulated depreciation	(86,732)	(8,620)	222	-	(95,130)
Assets under construction and assets under installation	5,852	2,780	(520)	(5,117)	2,995
<u>Less</u> Allowance for impairment	(80)	(456)	-	-	(536)
Total property, plant and equipment	119,216				112,765

Unit : Million Baht

As at December 31, 2019	Separate financial statements					Balances as at December 31, 2019
	Balances as at January 1, 2019	Additions	Disposals/ Write off	Transfers in (out)	Transfers from inventory	
Cost						
Land and land improvement	10,901	-	-	-	-	10,901
Buildings and building improvements	37,270	-	(5)	759	-	38,024
Machinery and pipes	140,822	235	(298)	6,095	317	147,171
Tools and factory equipment	2,362	82	(40)	74	-	2,478
Furniture, fixtures and office equipment	1,074	24	(29)	30	-	1,099
Vehicles	510	7	(14)	-	-	503
Total cost	192,939	348	(386)	6,958	317	200,176
Accumulated depreciation						
Buildings and building improvements	(15,600)	(1,293)	2	-	-	(16,891)
Machinery and pipes	(60,205)	(6,820)	254	-	-	(66,771)
Tools and factory equipment	(1,673)	(138)	40	-	-	(1,771)
Furniture, fixtures and office equipment	(831)	(76)	29	-	-	(878)
Vehicles	(413)	(22)	14	-	-	(421)
Total accumulated depreciation	(78,722)	(8,349)	339	-	-	(86,732)
Assets under construction and assets under installation	8,863	3,947	-	(6,958)	-	5,852
<u>Less</u> Allowance for impairment	(80)	-	-	-	-	(80)
Total property, plant and equipment	123,000					119,216
Depreciation for the years ended December 31,						
2020					Baht	8,620
2019					Baht	8,349

For the year ended December 31, 2020, borrowing costs of Baht 52 million was included in the purchases of assets in the consolidated and separate financial statements (2019 : Baht 141 million in the consolidated and separate financial statements) arising from financing specifically for the construction of new factories. The Group used the capitalisation rates between 3.32 and 3.77 to calculate the capitalised borrowing costs.

As at December 31, 2020 and 2019, costs of plant and equipment in the consolidated financial statements that were fully depreciated but still in use were Baht 10,902 million and Baht 9,202 million, respectively.

As at December 31, 2020 and 2019, costs of plant and equipment in the separate financial statements that were fully depreciated but still in use were Baht 10,401 million and Baht 8,765 million, respectively.

The Company considered to indefinitely postpone a project and reviewed the possibility of continuance for such project. Therefore, the Company recognized allowance for impairment of such project cost recorded in assets under construction of Baht 456 million for the year ended December 31, 2020.

15. RIGHT-OF-USE ASSETS

Right-of-use assets as at December 31, were as follows:

Unit : Million Baht					
As at December 31, 2020	Consolidated financial statements				Balance as at December 31, 2020
	Balance as at January 1, 2020	Effects from first-time adoption of TFRS 16 (see Note 2.7)	Additions	Disposal	
Cost					
Land	-	39	5	-	44
Buildings	-	69	5	-	74
Vehicles	-	191	9	(4)	196
Total cost	-	299	19	(4)	314
Accumulated depreciation					
Land	-	-	(6)	-	(6)
Buildings	-	-	(34)	-	(34)
Vehicles	-	-	(77)	1	(76)
Total accumulated depreciation	-	-	(117)	1	(116)
Total right-of-use assets	-				198
Depreciation for the year ended December 31, 2020					117

Unit : Million Baht					
As at December 31, 2020	Separate financial statements				Balance as at December 31, 2020
	Balance as at January 1, 2020	Effects from first-time adoption of TFRS 16 (see Note 2.7)	Additions	Disposal	
Cost					
Land	-	39	5	-	44
Buildings	-	66	5	-	71
Vehicles	-	183	5	(3)	185
Total cost	-	288	15	(3)	300
Accumulated depreciation					
Land	-	-	(5)	-	(5)
Buildings	-	-	(34)	-	(34)
Vehicles	-	-	(73)	1	(72)
Total accumulated depreciation	-	-	(112)	1	(111)
Total right-of-use assets	-				189
Depreciation for the year ended December 31, 2020					112

The maturity analysis of lease liabilities is presented in Note 23.

The Group leases several assets including land, buildings and vehicles. The lease term is 3 - 20 years.

Expenses relating to right-of-use assets recognised at profit or loss as at December 31 consists of the followings:

	Unit : Million Baht	
	Consolidated financial statements	Separate financial statements
	2020	2020
Amounts recognised in profit and loss		
Depreciation expense on right-of-use assets	117	112
Interest expense relating to lease liabilities	9	9
Expense relating to short-term leases	20	141
Expense relating to leases of low value assets	52	51
Expense relating to variable lease payments not included in the measurement of the lease liability	34	34

Overall the variable payments constitute up to 14% of the Group's entire lease payments. The Group expects this ratio to remain constant in future years. The variable payments depend on quantity used.

For the year ended December 31, 2020, the total cash outflow for leases amount to Baht 129 million and Baht 125 million in the consolidated and separate statements of cash flow, respectively.

16. INTANGIBLE ASSETS

Intangible assets as at December 31, consist of:

	Unit : Million Baht					
	Consolidated financial statements					
As at December 31, 2020	Balances as at January 1, 2020	Additions	Write off	Transfers In (out)	Reclassification of assets	Balances as at December 31, 2020
Cost						
Dredging expenses	2,640	162	(2,348)	-	-	454
Computer software	1,156	49	-	218	-	1,423
Total	3,796	211	(2,348)	218	-	1,877
Accumulated amortisation						
Dredging expenses	(2,562)	(31)	2,314	-	-	(279)
Computer software	(958)	(92)	-	-	-	(1,050)
Total	(3,520)	(123)	2,314	-	-	(1,329)
Computer software under installation	288	143	-	(218)	13	226
Total intangible assets	564					774

Unit : Million Baht

As at December 31, 2019	Consolidated financial statements				Balances as at December 31, 2019
	Balances as at January 1, 2019	Additions	Disposals	Transfers in (out)	
Cost					
Dredging expenses	2,640	-	-	-	2,640
Computer software	1,094	7	(18)	73	1,156
Total	3,734	7	(18)	73	3,796
Accumulated amortisation					
Dredging expenses	(2,524)	(38)	-	-	(2,562)
Computer software	(908)	(68)	18	-	(958)
Total	(3,432)	(106)	18	-	(3,520)
Computer software under installation	245	116	-	(73)	288
Total intangible assets	547				564
Amortisation for the years ended December 31,					
2020				Baht	123
2019				Baht	106

Unit : Million Baht

As at December 31, 2020	Separate financial statements				Balances as at December 31, 2020
	Balances as at January 1, 2020	Additions	Write off	Transfers in (out)	
Cost					
Dredging expenses	2,640	162	(2,348)	-	454
Computer software	1,148	49	-	218	1,415
Total	3,788	211	(2,348)	218	1,869
Accumulated amortisation					
Dredging expenses	(2,562)	(31)	2,314	-	(279)
Computer software	(954)	(91)	-	-	(1,045)
Total	(3,516)	(122)	2,314	-	(1,324)
Computer software under installation	287	129	-	(218)	198
Total intangible assets	559				743

Unit : Million Baht

As at December 31, 2019	Separate financial statements				
	Balances as at January 1, 2019	Additions	Disposals	Transfers in (out)	Balances as at December 31, 2019
Cost					
Dredging expenses	2,640	-	-	-	2,640
Computer software	1,087	6	(18)	73	1,148
Total	3,727	6	(18)	73	3,788
Accumulated amortisation					
Dredging expenses	(2,524)	(38)	-	-	(2,562)
Computer software	(905)	(67)	18	-	(954)
Total	(3,429)	(105)	18	-	(3,516)
Computer software under installation	244	116	-	(73)	287
Total intangible assets	542				559
Amortisation for the years ended December 31,					
2020					122
2019					105

17. DEFERRED INCOME TAX/INCOME TAX

The movement of deferred tax assets and liabilities during the years is as follows:

Unit : Million Baht

	Consolidated financial statements					
	Provisions for employee benefits	Fixed assets	Taxable loss carried forward	Derivatives	Others	Total
Deferred tax assets						
As at January 1, 2019	514	268	57	-	169	1,008
Net charged/(credited) to profit or loss	199	(11)	453	-	(2)	639
Net charged/(credited) to other comprehensive income	250	-	-	-	3	253
As at December 31, 2019	963	257	510	-	170	1,900
The effects from first-time adoption of new accounting policies to profit or loss	-	-	-	(136)	-	(136)
Net charged/(credited) to profit or loss	(148)	70	1,065	235	206	1,428
Net charged/(credited) to other comprehensive income	28	-	-	-	(3)	25
As at December 31, 2020	843	327	1,575	99	373	3,217

Unit : Million Baht

Consolidated financial statements

	Other non-current financial assets	Fixed assets	Lease liabilities	Derivatives	Total
Deferred tax liabilities					
As at January 1, 2019	-	685	-	-	685
Net (charged) /credited to profit or loss	-	(161)	-	-	(161)
As at December 31, 2019	-	524	-	-	524
The effects from first-time adoption of new accounting policies to other comprehensive income	1	-	-	-	1
Net (charged)/credited to profit or loss	-	(152)	2	28	(122)
Net (charged)/credited to other comprehensive income	2	-	-	-	2
As at December 31, 2020	3	372	2	28	405

Presentation in the statements of financial position

As at December 31, 2020

Deferred tax assets - net	2,812
---------------------------	-------

As at December 31, 2019

Deferred tax assets - net	1,376
---------------------------	-------

Unit : Million Baht

Separate financial statements

	Provisions for Employee benefit obligations	Fixed assets	Taxable loss carried forward	Derivatives	Others	Total
Deferred tax assets						
As at January 1, 2019	511	162	-	-	191	864
Net charged/(credited) to profit or loss	197	2	466	-	3	668
Net charged/(credited) to other comprehensive income	250	-	-	-	3	253
As at December 31, 2019	958	164	466	-	197	1,785
The effects from first-time adoption of new accounting policies to other comprehensive income	-	-	-	(136)	-	(136)
Net charged/(credited) to profit or loss	(148)	80	1,082	235	177	1,426
Net charged/(credited) to other comprehensive income	28	-	-	-	(3)	25
As at December 31, 2020	838	244	1,548	99	371	3,100

Unit : Million Baht

Separate financial statements

	Other non-current financial assets	Fixed assets	Lease liabilities	Derivatives	Total
Deferred tax liabilities					
As at January 1, 2019	-	685	-	-	685
Net (charged)/credited to profit or loss	-	(161)	-	-	(161)
As at December 31, 2019	-	524	-	-	524
The effects from first-time adoption of new accounting policies to other comprehensive income	1	-	-	-	1
Net (charged)/credited to profit or loss	-	(152)	2	28	(122)
Net (charged)/credited to other comprehensive income	2	-	-	-	2
As at December 31, 2020	3	372	2	28	405

Presentation in the statements of financial position

As at December 31, 2020

Deferred tax assets - net	2,695
---------------------------	-------

As at December 31, 2019

Deferred tax assets - net	1,261
---------------------------	-------

Income tax

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
For the years ended December 31,	2020	2019	2020	2019
Income tax expense for the current period	(16)	(21)	-	(3)
Deferred income tax benefit	1,550	800	1,548	829
Prior year tax adjustment	20	-	20	-
Income tax benefit	1,554	779	1,568	826

For the years ended December 31, 2020 and 2019, the Group's effective tax rate is not equal to the statutory tax rate of 20% under the Revenue Code because income tax expense is calculated from accounting profit adjusted by non-deductible expenses, deducted income or expense exemption under the Revenue Code and utilized the tax losses carried forward from prior years and also had the exempted net profit from the promoted business.

Income tax expenses (benefit) for the years ended December 31, are reconciled as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Profit (loss) before income tax expense	(7,684)	(1,924)	(7,004)	(2,250)
Tax calculated at a tax rate of 20%	(1,537)	(385)	(1,401)	(450)
Tax effect of:				
Profit from operations of associates - net of tax	(67)	(73)	-	-
Income subject to tax	1	-	1	-
Income not subject to tax	(65)	(109)	(279)	(153)
Income subject to tax exemption	-	(299)	-	(290)
Expenses not deductible for tax purpose	133	105	129	85
Expenses with additional deduction	(31)	(18)	(30)	(18)
Tax losses not recognised as deferred income tax	12	-	12	-
Income tax benefit	<u>(1,554)</u>	<u>(779)</u>	<u>(1,568)</u>	<u>(826)</u>

18. OTHER NON-CURRENT ASSETS

Other non-current assets as at December 31, consist of:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Prepaid expense	315	308	315	308
Others	30	40	28	38
Total other non-current assets	<u>345</u>	<u>348</u>	<u>343</u>	<u>346</u>

19. BORROWINGS

19.1 Short-term borrowings from financial institutions

Unsecured short-term borrowings from financial institutions as at December 31, are as follows:

	Unit : Million Baht			
	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
	Principal	% Interest rate per annum	Principal	% Interest rate per annum
Short-term borrowings from financial institutions	-	-	6,900	1.45 - 1.56

	Unit : Million Baht			
	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
	Principal	% Interest rate per annum	Principal	% Interest rate per annum
Short-term borrowings from financial institutions	-	-	6,900	1.45 - 1.56

19.2 Long-term borrowings from financial institutions and debentures

Long-term borrowings from financial institutions and debentures as at December 31, consist of:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Long-term borrowings from financial institutions	43,129	45,286	43,129	45,286
<u>Less</u> Current portion of long-term borrowings from financial institutions	(6,445)	(8,190)	(6,445)	(8,190)
<u>Less</u> Deferred financing fees	(71)	(103)	(71)	(103)
Total long-term borrowings from financial institutions	36,613	36,993	36,613	36,993
Debentures	18,890	6,890	18,890	6,890
<u>Less</u> Current portion of debentures	(6,890)	-	(6,890)	-
<u>Less</u> Deferred debentures issuance costs	(16)	(2)	(16)	(2)
Total debentures	11,984	6,888	11,984	6,888
Total current portion of long-term borrowings from financial institutions and debentures	13,335	8,190	13,335	8,190
Total long-term borrowings from financial institutions and debentures	48,597	43,881	48,597	43,881

Long- term borrowings

The Company entered into the following long-term loan agreements with local and foreign financial institutions for capital expenditure projects of the Group as follows:

- On June 29, 2018, the Company entered into the Facility Agreement of US Dollar 200 million with two financial institutions. The agreement is for a period of 7 years with an interest rate at LIBOR plus a certain margin per annum. The principal repayment is separated into 9 semi-annually instalments, starting from June 2020. The loans were fully drawn down.
- Unsecured loans with facilities of Baht 10,000 million with three local financial institutions are for a period of 8 years with the interest rate of the average maximum 6-month fixed deposit rate of four commercial banks plus a certain margin per annum. The payment of interest is monthly whereas the principal repayment is separated into 12 semi-annually instalments, starting from June 2016. The loans were fully drawn down.
- Unsecured loans with facilities of Baht 3,000 million with a local financial institution are for a period of 8 years with the interest rate of the maximum 6-month fixed deposit rate of an individual plus a certain margin per annum. The payments of interest is semi-annually whereas the principle repayment is separated into 10 semi-annually instalments, starting from September 30, 2017 (the 42nd month from the loan agreement date). The loans were fully drawn down.
- Unsecured loans with facilities of Baht 4,000 million with a local financial institution are for a period of 8 years from the first draw down with the interest rate of the maximum 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 12 semi-annually instalments, starting from December 28, 2018 (the 30th month from the first draw down). The loans were fully drawn down.

- Unsecured loans with facilities of Baht 5,000 million with a local financial institution are for a period of 8 years from the first draw down with the interest rate of the maximum 6-month fixed deposit rate of an individual plus a certain margin per annum. The payment of interest is monthly whereas the principal repayment is separated into 10 semi-annually instalments, starting from May 31, 2020 (the 42nd month from the first draw down). The loans were fully drawn down.
- Unsecured loans with facilities of Baht 15,000 million with four local financial institutions are for a period of 8 years from the first draw down with the interest rate of the average maximum 6-month fixed deposit rate of four commercial banks plus a certain margin per annum. The payment of interest is monthly whereas the principal repayment is separated into 10 semi-annually instalments, starting from November 30, 2020 (the 42nd month from the first draw down). The loans were fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 3,500 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from October 2023 (the 42nd month from the first draw down). The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 2,500 million with a local financial institution. The agreement is for a period of 7 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every 6 months whereas the principal repayment is separated into 10 semi-annually instalments, starting from March 2022. The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 3,000 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from January 2023. The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 1,550 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from October 2023 (the 42nd month from the first draw down). The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 450 million with a local financial institution. The agreement is for a period of 7 years with an interest rate at 6-month THBFIX plus a certain margin per annum. The interest will be paid every 3 months whereas the principal repayment is separated into 14 quarterly instalments, starting from April 2023. The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 3,000 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from June 2023. The facility was fully drawn down.
- On July 5, 2019, the Company entered into the unsecured Facility Agreement of Baht 1,000 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from October 2023 (the 42nd month from the first draw down). The facility was fully drawn down.

Under Facility Agreements, the Company has to comply with the covenants and conditions including the maintenance of certain financial conditions as specified in the agreements such as the maintenance of Debt to Equity Ratio and the maintenance of Debt Service Coverage Ratio. In this regard, Debt Service Coverage Ratio of 1 agreement did not meet the specified conditions. However, the Company already obtained consent letter from lenders indicating the waive of Debt Service Coverage Ratio covenant. The lenders confirmed that the Company was in compliance with conditions as specified in the Facility Agreement as at December 31, 2020.

Debentures

On May 9, 2014, the Company issued debentures which are non-subordinated, unsecured with a debenture holders' representative in the name-registered certificate, totaling Baht 15,000 million. The details are as follows:

- Tranche 1 debentures amounting to Baht 1,366 million and Tranche 4 debentures amounting to Baht 3,380 million with a fixed interest rate at 3.96% per annum, they were matured on May 9, 2017;
- Tranche 2 debentures amounting to Baht 1,944 million and Tranche 5 debentures amounting to Baht 1,420 million with a fixed interest rate at 4.50% per annum, they were matured on May 9, 2019; and
- Tranche 3 debentures amounting to Baht 2,940 million and Tranche 6 debentures amounting to Baht 3,950 million with a fixed interest rate at 4.96% per annum, and redemption date is on May 9, 2021.

Interest is payable on semi-annual for all six tranches of debentures. The first interest payment period is on November 9, 2014 with final interest payments at the redemption dates of each Tranche.

On September 11, 2020, the Company issued debentures which are non-subordinated, unsecured with a debenture holders' representative in the name-registered certificate for 5 tranches totaling Baht 12,000 million where Tranche 1 and Tranche 2 were offered to general investors totaling Baht 6,000 million and Tranche 3 to Tranche 5 were offered to limited institutional investors and/or high net worth totaling Baht 6,000 million, respectively.

The details are as follows:

Tranche 1 amounting to Baht 2,000 million for 3 years with a fixed interest rate at 3.00% per annum, it was matured on September 11, 2023.

Tranche 2 amounting to Baht 4,000 million for 5 years with a fixed interest rate at 3.50% per annum, it was matured on September 11, 2025.

Tranche 3 amounting to Baht 2,000 million for 2 years with a fixed interest rate at 2.76% per annum, it was matured on September 11, 2022.

Tranche 4 amounting to Baht 1,300 million for 10 years with a fixed interest rate at 3.93% per annum, it was matured on September 11, 2030.

Tranche 5 amounting to Baht 2,700 million for 15 years with a fixed interest rate at 4.40% per annum, it was matured on September 11, 2035.

Interest is payable on every March 11th and September 11th throughout the debentures' period for all tranches.

Under the terms of the debentures, the Company has to comply with certain conditions as stipulated, such as not creating any future lien or other security interest of the Group, maintaining direct and indirect ownership interest of PTT Public Company Limited in the Company and maintaining certain financial ratios as stipulated in the requirements of the debenture's issuer.

The movement of long-term borrowings from financial institutions and debentures for the year ended December 31, 2020 is as follow:

	Unit : Million Baht Consolidated and Separate financial statements
Opening net book amount	52,071
Drawdown for long-term borrowings	6,050
Issue debenture	12,000
Repayment of long-term borrowings	(8,203)
Realized loss on exchange rate	13
Unrealised gain on exchange rate	(17)
Financing cost of long-term borrowings	(13)
Financing cost of issue debenture	(18)
Amortisation of deferred financing fees	46
Amortisation of discount on debentures	2
Closing net book amount	61,931

19.3 Interest rates on borrowings and debentures

The interest rates on borrowings and debentures of the Group as at December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Short-term borrowings and debentures at fixed interest rates	18,873	13,788	18,873	13,788
Long-term borrowings at floating interest rates	43,058	45,183	43,058	45,183
	61,931	58,971	61,931	58,971

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Effective interest rates (%)				
Debentures	2.76 - 4.96	4.96	2.76 - 4.96	4.96
Long-term borrowings from financial institutions	1.40 - 2.99	2.43 - 3.79	1.40 - 2.99	2.43 - 3.79

19.4 Maturity of long-term borrowings from financial institutions and debentures

Maturity of long-term borrowings from financial institutions and debentures as at December 31, is as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Within 1 year	13,335	8,190	13,335	8,190
Later than 1 year but no later than 5 years	38,514	36,918	38,514	36,918
Later than 5 years	10,082	6,963	10,082	6,963
	61,931	52,071	61,931	52,071

19.5 Credit facilities

The Group has credit facilities with the commercial banks and a major shareholder totaling Baht 37,000 million and Baht 10,000 million, respectively, with the market interest rates. As at December 31, 2020, the Group has unused credit facilities with the commercial banks and a major shareholder of Baht 21,738 million and Baht 10,000 million, respectively.

20. TRADE PAYABLES

Trade payables as at December 31, consist of:

	Note	Consolidated		Unit : Million Baht	
		financial statements		Separate	
		2020	2019	2020	2019
Trade payables					
- Other parties		899	1,151	834	1,126
- Related parties	37 (g)	23,084	23,720	23,085	23,721
Total trade payables		23,983	24,871	23,919	24,847

21. OTHER PAYABLES

Other payables as at December 31, 2020 are as follows:

	Note	Consolidated		Unit : Million Baht	
		financial statements		Separate	
		2020	2019	2020	2019
Accounts payable - Acquisition of fixed assets		353	487	350	488
Accounts payable - Excise department and oil fund		806	904	806	904
Accounts payable - Revenue department		58	68	56	66
Accounts payable - Commodity derivative contracts		733	-	733	-
Employment restructuring obligations	24	750	-	750	-
Others		545	538	520	507
Total other payables		3,245	1,997	3,215	1,965

22. DERIVATIVES

Derivative assets and liabilities held for trading derivatives that are not designated in hedge accounting relationships carried at fair value through profit or loss.

Derivatives as at December 31, were as follows:

	Unit : Million Baht	
	Consolidated	Separate
	Financial Statements	Financial Statements
	2020	2020
Derivative financial assets - current		
Cross currency interest rate swap contracts	141	141
Total derivative financial assets	141	141
Derivative financial liabilities - current		
Commodity derivative contracts	341	341
Derivative financial liabilities - non-current		
Interest rate swap contracts	154	154
Total derivative financial liabilities	495	495

The Group has not entered into master netting agreements with the counterparties for above derivatives.

The Group has significant contracts related to derivatives as follows:

Interest rate swap contracts

The Company entered into interest rate swap contracts of USD long-term borrowings with two financial institutions totaling USD 140 million to swap interests from floating rate to fixing rate as specified in the contracts. The contracts are effective from November 15, 2019 to June 30, 2025.

The above interest rate swap contracts will be swapped the interest every month from the effective date until the maturity date and will recognise the transactions as derivatives in the financial statements over the period of contracts.

Cross currency interest rate swap contracts

The Company entered into three cross currency interest rate swap contracts of Thai Baht long-term borrowings with a financial institution totaling Baht 2,861.7 million to swap principals from Thai Baht to US Dollar at an exchange rate as specified in the contracts and to swap the fixed interest rate on Thai Baht principal to a fixed interest rate on US Dollar principal. The contracts are effective from September 28, 2020 to November 30, 2024.

The above cross currency interest rate swap contracts will be swapped the interest every ended of May and November from the effective date until the maturity date and will recognise the transactions as derivatives in the financial statements over the period of contracts.

Commodity derivative contracts

The Company has entered into Crack Spread Swap Contracts with a related party and several financial institutions in order to swap the spread of the average benchmark price of crude oil and petroleum products of the settlement months to the fixed price. As at December 31, 2020 and December 31, 2019, the outstanding balances under such contracts were at 2.40 million barrels and 14.85 million barrels, respectively.

The Company has entered into Crude Oil Swap Contracts with a related party and several financial institutions in order to swap the average benchmark price of crude oil and petroleum products of the settlement months to the range of fixed price. As at December 31, 2020 and December 31, 2019, the outstanding balances under such contracts were at 6.35 million barrels and 9 million barrels, respectively.

23. LEASE LIABILITIES

Lease liabilities as at December 31, consist of:

	Unit : Million Baht	
	Consolidated financial statements	Separate financial statements
	2020	2020
Maturity analysis:		
Year 1	103	99
Year 2	46	42
Year 3	25	23
Year 4	9	9
Year 5	6	6
Year 5 onwards	10	10
	199	189
<u>Less</u> deferred interest	(10)	(10)
Total	189	179
Analysed as:		
Current	99	95
Non-current	90	84
Total	189	179

The Group does not face a significant liquidity risk with regard to its lease liabilities. Lease liabilities are monitored within the Group's treasury function.

24. EMPLOYEE BENEFIT OBLIGATIONS

Statements of financial position As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Retirement benefits	4,032	4,630	3,983	4,583
Other long-term benefits	207	206	205	205
	<u>4,239</u>	<u>4,836</u>	<u>4,188</u>	<u>4,788</u>

Statements of profit or loss For the years ended December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Retirement benefits	(267)	1,015	(272)	1,001
Other long-term benefits	19	62	19	62
	<u>(248)</u>	<u>1,077</u>	<u>(253)</u>	<u>1,063</u>

The movements of employee benefit obligations for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Opening book amount	4,836	2,582	4,788	2,554
Current service costs	227	159	224	156
Interest cost	85	108	84	107
Past service cost	(608)	763	(608)	754
Loss on remeasurement of retirement benefit obligations	140	1,255	140	1,248
Loss on remeasurement of other long-term benefit obligations	47	47	47	47
Benefits paid	<u>(488)</u>	<u>(78)</u>	<u>(487)</u>	<u>(78)</u>
Closing book amount	<u>4,239</u>	<u>4,836</u>	<u>4,188</u>	<u>4,788</u>

Total current service costs, interest cost, past service cost and loss on remeasurement of other long-term benefit obligations are recognised in the statements of profit or loss.

The expenses of Baht 193 million and Baht 191 million were included in cost of sales in the consolidated and separate statements of profit or loss for the year ended December 31, 2020, respectively (2019 : Baht 615 million and Baht 612 million).

The expenses (reversal) of Baht (441) million and Baht (444) million were included in administrative expenses in the consolidated and separate statements of profit or loss for the year ended December 31, 2020, respectively (2019 : Baht 462 million and Baht 452 million).

The principle actuarial assumptions used for calculating the employee benefit obligations as at December 31, are as follows:

	Consolidated financial statements		Unit : Percentage Separate financial statements	
	2020	2019	2020	2019
Discount rate	1.5	1.8	1.5	1.8
Salary growth rate	4.0 - 8.0	4.0 - 8.0	5.0 - 8.0	5.0 - 8.0
Turnover rate	0 - 7.0	0 - 7.0	0 - 2.0	0 - 2.0

The sensitivity analysis of the above actuarial assumptions impacted on increase (decrease) in present value of the employee benefit obligations as at December 31, are as follows:

		Unit : Million Baht			
		Consolidated financial statements			
		2020		2019	
		Impact on defined benefit obligation		Impact on defined benefit obligation	
Change in assumption		Increase in assumption	Decrease in assumption	Increase in assumption	Decrease in assumption
Discount rate	1%	(447)	522	(489)	571
Salary growth rate	1%	407	(356)	521	(458)

		Unit : Million Baht			
		Separate financial statements			
		2020		2019	
		Impact on defined benefit obligation		Impact on defined benefit obligation	
Change in assumption		Increase in assumption	Decrease in assumption	Increase in assumption	Decrease in assumption
Discount rate	1%	(443)	516	(484)	565
Salary growth rate	1%	402	(352)	516	(453)

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated.

The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous year.

Through its defined benefit retirement benefit plans and other long-term benefits plans, the Group is exposed to a number of risks, the most significant of which are detailed below:

Changes in effective bond yields

A decrease in effective government bond yields will increase plan liabilities.

The weighted average duration of the defined benefit obligation is 12 years (2019 : 11 years).

The Group uses the cash flows from operating activities to pay the retirement and other long-term benefits.

Expected maturity analysis of retirement and other long-term benefits as at December 31, 2020 are as follows:

		Unit : Million Baht			
		Consolidated financial statements			
		Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits		94	314	3,624	4,032
Other long-term benefits		13	82	112	207
Total		107	396	3,736	4,239

		Unit : Million Baht			
		Separate financial statements			
		Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits		91	306	3,586	3,983
Other long-term benefits		13	81	111	205
Total		104	387	3,697	4,188

Expected maturity analysis of retirement and other long-term benefits as at December 31, 2019 are as follows:

Unit : Million Baht			
Consolidated financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years
	Total		
Retirement benefits	115	516	3,999
Other long-term benefits	15	67	124
Total	130	583	4,123

Unit : Million Baht			
Separate financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years
	Total		
Retirement benefits	115	504	3,964
Other long-term benefits	15	67	123
Total	130	571	4,087

On June 1, 2020, the Company has officially announced the Increase in Organization Capability project resulting in the employment restructuring by terminating the employment and voluntary resignation for employees who are 40 years and above. The Company then set up the provisions for terminating the employee's contract in amount of Baht 1,410 million which was recorded in other payables in amount of Baht 750 million and other non-current liabilities in amount of Baht 660 million in the consolidated and separate financial statements as at December 31, 2020. The Company had no obligations regarding the Thai Labor Protection Act for settling the employee benefit obligations. In this regard, the Company reversed the provisions for employee benefits in amount of Baht 396 million in the consolidated and separate financial statements as at December 31, 2020.

Provident fund contributions for their employees and recorded as expense in the statements of profit or loss for the years ended December 31, are as follows:

Consolidated financial statements		Unit : Million Baht Separate financial statements	
2020	2019	2020	2019
Provident fund expenses	499	493	496

25. OTHER NON-CURRENT LIABILITIES

Other non-current liabilities as at December 31, 2020 are as follows:

		Unit : Million Baht	
		Consolidated financial statements	Separate financial statements
		2020	2019
		2020	2019
Employment restructuring obligations	Note 24	660	-
Others		27	25
Total other non-current liabilities		687	25

26. LEGAL RESERVE

Under the Public Company Act of B.E. 2535, the Company is required to set aside a statutory reserve of at least 5% of its net profit after accumulated deficit is brought forward (if any) until the reserve reaches not less than 10% of the registered capital. The legal reserve is not available for distribution as dividends.

The legal reserve has been fully provided to comply with the law since 2007.

27. PREMIUM ON TREASURY STOCK - ORDINARY SHARES HELD BY A SUBSIDIARY

Premium on treasury stock - ordinary shares held by a subsidiary as at December 31, consists of the following:

	Unit : Million Baht Consolidated financial statements	
	2020	2019
IRPC Oil Company Limited	124	124
	<u>124</u>	<u>124</u>

As at December 31, 2020, the Company's ordinary shares of 23,828,400 shares have been held by IRPC Oil Company Limited, a subsidiary (2019 : 23,828,400 shares). These shares are stated at costs and presented in the consolidated statements of financial position as a deduction of total shareholders' equity.

The subsidiary plans to dispose of the Company's shares when returns are higher than its costs.

28. NON-CONTROLLING INTERESTS

The movements of non-controlling interests for the years ended December 31, are as follows:

	Unit : Million Baht Consolidated financial statements	
	2020	2019
Beginning balance	146	94
Dividends paid	(28)	(30)
Share of profit for the year	22	28
Increase in portion of investment of non-controller of subsidiaries	-	54
Ending balance	<u>140</u>	<u>146</u>

29. OTHER INCOME (EXPENSE)

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
For the years ended December 31,	2020	2019	2020	2019
Interest income	53	28	62	37
Dividend income	6	2	488	189
Gain (loss) on exchange rate from borrowings and interest payable	(2)	458	(2)	458
Gain on exchange rate	369	216	372	212
Gain (loss) on disposals of fixed assets and investment property	(45)	78	(45)	78
Loss on disposals of intangible assets	(34)	-	(34)	-
Gain (loss) on sales of investment in a subsidiary	-	3	-	240
Reversal (loss) of loss on impairment of investment in a subsidiary and joint venture	-	-	718	(77)
Reversal of loss on impairment of other long-term investments	-	442	-	442
Reversal (loss) of loss on impairment of fixed assets and investment property	(456)	251	(456)	151
Income from tax refund from the customs import duty	87	105	87	105
Others	674	726	715	767
Total other income (expense)	<u>652</u>	<u>2,309</u>	<u>1,905</u>	<u>2,602</u>

30. NET DERIVATIVE GAIN

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
For the years ended December 31,				
Realised gain (loss) on financial derivative contracts	(380)	969	(380)	969
Unrealised loss on financial derivative contracts	(38)	-	(38)	-
Realised gain on commodity derivative contracts	1,734	676	1,734	676
Unrealised loss on commodity derivative contracts	(961)	-	(961)	-
Total net derivative gain	355	1,645	355	1,645

Gain (loss) on commodity derivative contracts are due to the fluctuation in price of crude oil and petroleum products and the contract price of commodity derivatives which is nature of normal business.

31. ADMINISTRATIVE EXPENSES

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
For the years ended December 31,				
Staff costs	3,627	3,654	3,587	3,603
Consultant fees	328	269	324	266
Depreciation	278	226	169	121
Rental	119	175	243	174
Advertising	23	34	22	34
Bad debts and doubtful accounts (reversal)	(1)	(15)	-	(19)
Directors' remuneration	27	47	24	44
Others	1,317	1,202	1,235	1,147
Total administrative expenses	5,718	5,592	5,604	5,370

32. SIGNIFICANT EXPENSES BY NATURE

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
For the years ended December 31,				
Changes of finished goods	(1,734)	(1,299)	(1,746)	(1,245)
Cost of raw materials used	128,828	192,385	128,667	192,158
Staff costs	9,088	10,171	8,956	10,021
Depreciation	8,713	8,435	8,620	8,349
Amortisation	239	108	234	107
Directors' and managements' remuneration	81	105	78	102

33. FINANCE COSTS

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
For the years ended December 31,				
Interest expense	1,892	2,024	1,891	2,024
Interest expense from lease liabilities	9	-	9	-
Amortisation of deferred financing fees	46	37	46	37
Amortisation of discount on debentures	2	2	2	2
Total interest expense	1,949	2,063	1,948	2,063
<u>Less</u> amounts included in the cost of qualifying assets	(52)	(141)	(52)	(141)
	1,897	1,922	1,896	1,922
Others finance cost	5	9	5	9
Total	1,902	1,931	1,901	1,931

34. BASIC EARNINGS (LOSS) PER SHARE

Basic earnings (loss) per share are calculated by dividing the profit (loss) attributable to owner of the parent for the years ended December 31, by the weighted average number of ordinary shares outstanding during the years less shares of the parent held by a subsidiary excluding treasury shares.

	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
Profit (loss) attributable to owner of the parent (million Baht)	(6,152)	(1,174)	(5,436)	(1,423)
Weighted average number of ordinary shares outstanding during the years less shares of the parent held by a subsidiary (million shares)	20,410	20,410	20,434	20,434
Basic earnings (loss) per share (Baht)	(0.30)	(0.06)	(0.27)	(0.07)

In the consolidated financial statements, the weighted average numbers of ordinary shares outstanding during the years are deducted by 24 million shares of the parent held by a subsidiary.

There are no dilutive potential ordinary shares in issue during the years presented, so no diluted earnings per share is presented.

35. DIVIDENDS PAID

On April 3, 2019, the Annual General Meeting of shareholders of the Company approved a dividend payment for the operating results of 2018 at Baht 0.19 per share for 20,434 million shares, totaling Baht 3,883 million. The dividend consists of interim dividend at Baht 0.10 per share totaling Baht 2,043 million which was paid on September 19, 2018 and the remaining dividend of Baht 0.09 per share totaling Baht 1,839 million which was paid on April 19, 2019.

On March 25, 2020, the Board of Directors' meeting of the Company pass a resolution to approve the distribution of interim dividend payment instead of the annual dividend payment which was planned to propose to the Annual General Meeting of shareholders of the Company at Baht 0.10 per share, totaling Baht 2,043 million. The dividend was paid on April 24, 2020.

36. PROMOTIONAL PRIVILEGES

By virtue of the provisions of the Industrial Investment Promotion Act of B.E. 2520, the Company has been granted privileges by the Board of Investment relating to the manufacture of Compounded Plastic, The cogeneration and steam power plant project (“CHP”), Propylene project (“PRP”), EBSM Upgrading for ABS Specialties project (“EBSM”), Multi Product Pipeline project (“MPPL”), Polypropylene Resin project (“PPE”), Polypropylene Compound project (“PPC”), High Pressure HDPE Compound project, Investment project in Industrial area and Improve Efficiency for Saving Energy of Petroleum project (“UHV”) and Floating Solar project. The privileges granted include:

- (a) exemption from payment of import duty and tax on materials and necessary parts including machinery as approved by the Board
- (b) exemption from payment of corporate income tax on the net profit derived from certain operations for a period of five to eight years from the date on which the income is first derived from such operations
- (c) a 50% reduction in the normal corporate income tax rate on the net profit derived from certain operations for a period of five years commencing from the expiry date in (b) above, and
- (d) the double deduction of logistics, electricity and water expenses for a period of ten years since income is first derived from such operations.

As promoted companies, the Company must comply with certain terms and conditions prescribed in the promotional certificates.

To comply with the announcement of the Board of Investment No. Por. 14/2541 dated December 30, 1998 regarding the revenues reporting of a promoted industry, the Company’s total revenues from sales and services, which are allocated to promoted and non-promoted activities for the years ended December 31, are as follows:

	Unit : Million Baht					
	Separate financial statements					
	2020			2019		
	BOI	Non-BOI	Total	BOI	Non-BOI	Total
Revenues from sales and services						
- Overseas	31,073	27,675	58,748	46,799	42,080	88,879
- Domestic	60,748	53,940	114,688	72,255	77,040	149,295
Total	91,821	81,615	173,436	119,054	119,120	238,174

37. RELATED PARTY TRANSACTIONS

Enterprises and individuals that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the Company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the Company. Associates and individuals owning, directly or indirectly, an interest in the voting power of the Company that gives them significant influence over the enterprise, key management personnel, including directors and officers of the Company and close members of the family of these individuals and companies associated with these individuals also constitute related parties.

In considering each possible related party relationship, attention is directed to the substance of the relationship, and not merely the legal form.

As at December 31, 2020, PTT Public Company Limited is the major shareholder of the Company, holding 45.05%. The another major shareholder is Thai NVDR Company Limited.

The pricing policies for particular types of transactions are as follows:

Transactions	Pricing policies
Revenue from sales and services	Market price
Purchases of raw material	According to the explanation below
Selling and administrative expenses which mainly are throughout fees and tank farms rental	Contractually agreed prices
Interest income and interest expense	<u>Short-term</u> - the weighted average interest rates 1-month and average interest rates 6-month of borrowing between commercial banks (BIBOR) adjusted by certain margins. <u>Long-term</u> - the weighted average interest rates of fixed deposits for four domestic commercial banks and the Minimum Loan Rate (MLR) adjusted by certain margins.
Directors' remunerations (meeting and bonus)	The rate approved by the Board of Directors and shareholders

Purchases of goods from a major shareholder - the major shareholder has provided services relating to the purchasing and payment process of goods. The purchase price includes a service fee charged by the major shareholder approximates the price of which the Group has procured by its own. In addition, the Company has also entered into commodity derivative contracts with a related party to protect the pricing risk regarding crude oil and petroleum products.

Significant transactions with related parties are summarised as follows:

(a) Sales and purchases of goods, services rendered and received

For the years ended December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Sales of goods and services				
- Major shareholder	593	22	593	22
- Subsidiaries	-	-	5,477	7,349
- Related parties	42,236	63,205	41,610	62,507
Purchases of goods				
- Major shareholder	103,029	155,802	103,029	155,802
- Subsidiaries	-	-	8	13
- Related parties	16,593	25,031	16,589	25,028
Sales / Purchase crude oil and raw material for crude reserve				
- Related parties	-	2,646	-	2,646
Selling and administrative expenses				
- Major shareholder	46	54	46	54
- Subsidiaries	-	-	232	307
- Related parties	773	804	744	772
Net derivative gain(loss)				
- A related party	(10)	201	(10)	201
Interest income, dividend income and other income				
- Major shareholder	75	11	75	11
- Subsidiaries	-	-	101	155
- Related parties	511	256	952	352
Interest expense and other expenses				
- Major shareholder	3	31	3	31
- A related party	2	-	2	-

(b) Trade receivables from related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Major shareholder	542	2	542	2
Subsidiaries	-	-	285	217
Related parties	3,098	4,447	3,037	4,379
Total	3,640	4,449	3,864	4,598

(c) Amounts due from related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Major shareholder	1	1	1	1
Subsidiaries	-	-	22	21
Related parties	153	161	153	161
	154	162	176	183
<u>Less</u> Allowance for doubtful accounts	-	-	(10)	(11)
Total	154	162	166	172

(d) Short-term loans and interest receivables to related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Short-term loans and interest receivables				
Subsidiaries	-	-	17	179
Total	-	-	17	179

Average interest rate of short-term loans to related parties are 2.45% per annum (2019: 1.80% per annum). Items that have been provided an allowance for doubtful debt have stopped charging interest.

(e) Other current assets

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
A related party	185	-	185	-
Total	185	-	185	-

(f) Long-term loans to related party

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Long-term loans				
Subsidiary	-	-	190	240
Total	-	-	190	240

Average interest rate of long-term loans to related party is 3.11% per annum (2019: 3.81% per annum).

(g) Trade payables to related parties

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
As at December 31,	2020	2019	2020	2019
Major shareholder	21,674	21,431	21,674	21,431
Subsidiaries	-	-	1	1
Related parties	1,410	2,289	1,410	2,289
Total	23,084	23,720	23,085	23,721

(h) Amounts due to related parties

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
As at December 31,	2020	2019	2020	2019
Subsidiaries	-	-	18	19
Related parties	365	242	365	241
Total	365	242	383	260

(i) Lease liabilities

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
As at December 31,	2020	2019	2020	2019
Related parties	34	-	34	-
Total	34	-	34	-

(j) Derivative liabilities

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
As at December 31,	2020	2019	2020	2019
A related party	110	-	110	-
Total	110	-	110	-

(k) Directors' and management's remuneration

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
For the years ended December 31,	2020	2019	2020	2019
Salaries and other short-term benefits	80	103	77	100
Long-term benefits	1	2	1	2
Total	81	105	78	102

38. FINANCIAL INSTRUMENTS

38.1 Financial risk management objectives

The Group's Corporate Treasury function monitors and manages the financial risks relating to the operations of the Group through internal risk reports which analyses exposures by degree and magnitude of risks. These risks include market risk (including currency risk, interest rate risk and price risk), credit risk and liquidity risk.

The Group seeks to minimise the effects of these risks by using financial instruments such as derivatives to hedge these risk exposures. The use of financial derivatives is governed by the Group's policies approved by the board of directors, which provide written principles on foreign exchange risk, interest rate risk, credit risk. The use of financial derivatives and non-derivative financial instruments, and the investment of excess liquidity, compliance with policies and exposure limits are reviewed by the internal auditors on a continuous basis. The Group does not enter into or trade financial instruments, including, financial derivatives for speculative purposes.

The Corporate Treasury function reports the result of risk management on a quarterly basis to the Group's risk management committee, an independent body that determines the policies and monitors the risk management implemented to mitigate risk exposures.

38.2 Market risk

The Group's activities expose it primarily to the financial risks of changes in foreign currency exchange rates and interest rates. The Group enters into a variety of financial derivatives to manage its exposure to interest rate and foreign currency risk, including:

- Forward foreign exchange contracts to hedge the exchange rate risk arising on the export and import of goods and including foreign currency loans
- Interest rate swap contracts to mitigate the risk of rising interest rates;
- Commodity derivative contracts to mitigate the price risk of purchased inventory

38.2.1 Foreign currency risk management

The Group undertakes transactions denominated in foreign currencies; consequently, exposures to exchange rate fluctuations arise. Exchange rate exposures are managed within approved policy parameters utilising foreign exchange contracts and forward contracts.

The carrying amounts of the Group's foreign currency denominated monetary assets and monetary liabilities at December 31, are as follows:

	Consolidated				Unit : Million Baht			
	Financial Statements				Separate			
	Assets		Liabilities		Assets		Liabilities	
	2020	2019	2020	2019	2020	2019	2020	2019
USD	3,967	4,404	5,201	6,293	3,967	4,404	5,176	6,293
EURO	-	-	18	8	-	-	18	8
Others	-	-	7	8	-	-	-	3

Foreign currency sensitivity analysis

The Group is mainly exposed to the currency of assets and liabilities to USD currency.

The following table details the Group's sensitivity to a 10% appreciate and depreciate in Thai Baht against the relevant foreign currencies. 10% is the sensitivity rate used when reporting foreign currency risk internally to key management personnel and represents management's assessment of the reasonably possible change in foreign exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at the year-end for a 10% change in foreign currency rates as follows.

	Consolidated		Unit : Million Baht	
	Financial Statements		Separate	
	Assets	Liabilities	Assets	Liabilities
	2020	2020	2020	2020
Profit (loss)				
- 10% appreciate	(397)	790	(397)	787
- 10% depreciate	397	(790)	397	(787)

38.2.2 Interest rate risk management

The Group is exposed to interest rate risk because entities in the Group borrow funds at both fixed and floating interest rates. The risk is managed by the Group by maintaining an appropriate mix between fixed and floating rate borrowings, and by the use of interest rate swap contracts. Hedging activities are evaluated regularly to align with interest rate views and defined risk appetite; ensuring the most cost-effective hedging strategies are applied.

The Group's exposures to interest rates on financial assets and financial liabilities are detailed in the liquidity risk management section of this note.

Interest rate sensitivity analysis

The sensitivity analysis below have been determined based on the exposure to interest rates for both financial derivatives and non-financial derivatives at the reporting date. For floating rate liabilities, the analysis is prepared assuming the amount of liability outstanding at the reporting date was outstanding for the whole year. The Group's sensitivity to 1% increase or decrease is used when reporting interest rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in interest rates.

If interest rates had been 1% higher/lower and all other variables were held constant, the Group's:

- Profit or loss for the year ended December 31, 2020 would decrease/increase by Baht 311 million. This is mainly attributable to the Group's exposure to interest rates on its floating rate borrowing.

Interest rate swap contracts

Under interest rate swap contracts, the Group agrees to exchange the difference between fixed and floating rate interest amounts calculated on agreed notional principal amounts. Such contracts enable the Group to mitigate the risk of changing interest rates on the fair value of issued fixed rate debt held and the cash flow exposures on the issued variable rate debt held.

The detail various information regarding interest rate swap contracts outstanding at the end of the reporting period, interest rate swap contract assets and liabilities are included in Note 22.

Interest rate swap contracts will be settled every month. The floating rate on the interest rate swap contracts is 1-month LIBOR plus 1.25%. The Group will settle the difference between fixed and floating rate on a net basis.

38.2.3 Commodity price risk

Commodity price risk in the Group primarily arises from price fluctuations and the availability of petroleum products. The Group enters into derivative transactions to limit these risks. Hedging activities are evaluated regularly to align with Group expectations about the price changes and defined risk appetite; ensuring the most cost-effective hedging strategies are applied.

Commodity price sensitivity analysis

If the commodity price had been increased/(decreased) by 1 USD per barrel in December 2020, profit (loss) after tax would increase/ (decrease) by Baht 71 million.

Commodity derivative contracts

The Group has a policy to enter into commodity derivative contracts to manage the commodity price risk associated with anticipated purchase transactions in next 24 months. The Group policy is to enter into crack spread swap contracts up to 50% of production quantity and enter into crude oil swap contracts up to 100%.

The following tables detail the commodity derivative contracts outstanding at the end of the reporting period. Commodity derivative contracts are presented in the line 'Derivative Liabilities' within the statements of financial position.

	Consolidated and separate financial statements	
	Quantity	Carrying amount of derivative contracts
	2020 Million Barrels	2020 Million Baht
As at December 31,		
Outstanding of commodity derivative contracts		
Crack Spread Swap Contracts	2.40	90
Crude Oil Swap Contracts	6.35	(431)
		<u>(341)</u>

38.2.4 Other price risks

The Group is exposed to equity price risks arising from equity investments.

Equity investments in unlisted entities are held for strategic rather than trading purposes.

Equity price sensitivity analysis

The sensitivity analysis below have been determined based on the exposures to equity price risks at the reporting date.

If equity prices had been 10% higher/lower:

- Other comprehensive income for the year ended December 31, 2020 would increase/decrease by Baht 12 million as a result of the changes in fair value of the investments in listed shares.

38.3 Credit risk management

Note 8 details the Group's maximum exposure to credit risk and the measurement bases used to determine expected credit losses.

In order to minimise credit risk, the Group has determined the policies and procedures to consider the appropriate credit limit for business, comparable to leading companies in the same business. The Group takes into account the risks that will cause bad debts to the Group by having the credit committee who is responsible for supervising the credit management for selling all type of products and services of the Group.

Before approving credit limit to counterparty, the Group has set the terms and analysis for both counterparty with or without collateral to determine the credit rating. The analysis includes financial position, financial performance, ability to pay off debts together with qualitative information such as the Company's profile and major shareholders. The terms and credit limits are determined by the credit ratings as approved by the credit committee. The Group reviews the terms and credit limits with each counterparty on an annually basis.

The Group does not have significant credit risk exposure to any single counterparty or any group of counterparties having similar characteristics. The Group has no significant concentrations of credit risks. 80% of the trade receivables has the best credit scoring under the credit rating system used by the Group. Other monitoring procedures are also in place to ensure that follow-up action is taken to recover overdue debts. Furthermore, the Group reviews the recoverable amount of each trade receivable on an individual basis at the end of the reporting period to ensure that adequate loss allowance is made for irrecoverable amounts.

38.4 Liquidity risk management

Ultimate responsibility for liquidity risk management rests with the board of directors, which has established an appropriate liquidity risk management framework for management of the Group's short, medium and long-term funding and liquidity management requirements. The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecast and actual cash flows, and by matching the maturity profiles of financial assets and liabilities.

38.4.1 Liquidity and interest risk tables

The following tables detail the Group's remaining contractual maturity for its non-derivative financial liabilities with agreed repayment periods. The tables have been drawn up based on the undiscounted cash flows of financial liabilities based on the earliest date on which the Group can be required to pay. The table includes both interest and principal cash flows. To the extent that interest cash flows are floating rate, the undiscounted amount is derived from interest rate curves at the reporting date.

Consolidated financial statements						Unit : Million Baht
As at December 31, 2020	Weighted average effective interest rate	Less than 1 year	1 - 5 years	More than 5 years	Total	Carrying amount
Trade payables		23,983	-	-	23,983	23,983
Other payables		2,377	-	-	2,377	2,377
Amounts due to related parties		365	-	-	365	365
Interest payables		210	-	-	210	210
Accrued bonus expense		1,159	-	-	1,159	1,159
Other current liabilities		397	-	-	397	397
Long-term borrowings from financial institutions	2.40	6,450	30,579	6,100	43,129	43,129
Debentures	4.10	6,890	8,000	4,000	18,890	18,890
Lease liabilities		103	86	10	199	199
Other non-current liabilities		-	687	-	687	687

Separate financial statements						Unit : Million Baht
As at December 31, 2020	Weighted average effective interest rate	Less than 1 year	1 - 5 years	More than 5 years	Total	Carrying amount
Trade payables		23,919	-	-	23,919	23,919
Other payables		2,349	-	-	2,349	2,349
Amounts due to related parties		383	-	-	383	383
Interest payables		210	-	-	210	210
Accrued bonus expense		1,144	-	-	1,144	1,144
Other current liabilities		384	-	-	384	384
Long-term borrowings from financial institutions	2.40	6,450	30,579	6,100	43,129	43,129
Debentures	4.10	6,890	8,000	4,000	18,890	18,890
Lease liabilities		99	80	10	189	189
Other non-current liabilities		-	660	-	660	660

The following table details the Group's liquidity analysis for its financial derivatives based on contractual maturities. The table has been drawn up based on the undiscounted net cash inflows and outflows on derivatives instruments that settle on a net basis, and the undiscounted gross inflows and outflows on those derivatives that require gross settlement. When the amount payable or receivable is not fixed, the disclosed amount has been determined by referring to the projected interest rates as illustrated by the yield curves existing at the reporting date.

Unit : Million Baht						
As at December 31, 2020	Consolidated and separate financial statements					
	Less than 1 month	1 - 3 months	3 months to 1 year	1 - 2 years	2 - 5 years	More than 5 years
Derivative assets:						
Cross currency interest rate swaps contracts	-	-	-	-	141	-
Derivative liabilities:						
Interest rate swap contracts	-	-	-	-	154	-
Commodity derivative contracts	-	-	341	-	-	-

38.4.2 Financing facilities

The Group is using combination of the cash inflows from the financial assets and the available bank facilities to manage the liquidity.

The table below presents the cash inflows from financial assets:

Unit : Million Baht				
As at December 31, 2020	Consolidated financial statements			
	Less than 1 year	1 - 5 years	More than 5 years	Total
Trade receivables	9,626	-	-	9,626
Other receivables	213	-	-	213
Amounts due to related parties	154	-	-	154
Other current assets	198	-	-	198
Other non-current financial assets	-	-	1,692	1,692
Derivative assets	-	141	-	141
Other non-current assets	-	27	-	27

As at December 31, 2020	Separate financial statements			
	Less than 1 year	1 - 5 years	More than 5 years	Total
Trade receivables	9,711	-	-	9,711
Other receivables	211	-	-	211
Short-term loans and interest receivables				
to related parties	17	-	-	17
Amounts due to related parties	166	-	-	166
Other current assets	198	-	-	198
Other non-current assets	-	-	1,691	1,691
Long-term loans to related parties	-	190	-	190
Derivative assets	-	141	-	141

The Group accesses capital sources by having credit facilities with commercial banks and a major shareholder totaling Baht 37,000 million and Baht 10,000 million, respectively, with the market interest rate. As at December 31, 2020, the Group has unused credit facilities with the commercial banks and a major shareholder of Baht 21,738 million and Baht 10,000 million, respectively (see Note 19.5).

38.5 Capital risk management

The Group manages its capital to ensure that entities in the Group will be able to continue as going concerns while maximising the return to shareholders through the optimisation of the debt and equity balance.

The capital structure of the Group consists of net debt (borrowings disclosed in Note 19 after deducting cash and bank balances) and equity of the Group (comprising issued capital, reserves, retained earnings and noncontrolling interests).

The Group's risk management committee reviews the capital structure on a semi-annual basis. As part of this review, the committee considers the cost of capital and the risks associated with each class of capital. The Group has a target gearing ratio not over 1 time determined as the proportion of net debt to equity. The gearing ratio as at December 31, 2020 was 0.71 at below the target range.

38.6 Classes and categories of financial instruments and their fair values

The following table combines information about:

- Classes of financial instruments based on their nature and characteristics;
- The carrying amounts of financial instruments;
- Fair values of financial instruments (except financial instruments when carrying amount approximates their fair value); and
- Fair value hierarchy levels of financial assets and financial liabilities for which fair value was disclosed
- Fair value hierarchy levels 1 to 3 are based on the degree to which the fair value is observable

The carrying values of cash and cash equivalents, trade receivables, other receivables, amounts due from related parties, short-term loans and interest receivables from related parties, trade payables, other payables, amounts due to related parties, interest payables and accrued bonus expense approximate their fair values due to the short maturity period.

The carrying values of long-term loans to related parties and long-term borrowings from financial institutions with floating interest rate the fair values approximate their carrying values.

Unit : Million Baht

As at December 31, 2020	Consolidated financial statements											
	Carrying Value			Fair Value								
	Financial assets			Level								
	FVTPL - mandatorily measured	FVTOCI - designated	Amortised cost	FVTPL - mandatorily measured	Amortised cost	Non-financial assets and non-financial liabilities	Total	1	2	3	Total	
Cash and cash equivalents	-	-	8,851	-	-	-	8,851	-	-	-	-	-
Trade accounts receivable	-	-	9,626	-	-	-	9,626	-	-	-	-	-
Other receivables	-	-	213	-	-	1,373	1,586	-	-	-	-	-
Amounts due from related parties	-	-	154	-	-	-	154	-	-	-	-	-
Other current assets	-	-	198	-	-	994	1,192	-	-	-	-	-
Other non-current financial assets	-	1,692	-	-	-	-	1,692	53	-	1,639	-	1,692
Derivative assets	141	-	-	-	-	-	141	-	141	-	-	141
Other non-current assets	-	-	27	-	-	318	345	-	-	-	-	-
Trade payables	-	-	-	-	23,983	-	23,983	-	-	-	-	-
Other payables	-	-	-	-	2,377	868	3,245	-	-	-	-	-
Amounts due to related parties	-	-	-	-	365	-	365	-	-	-	-	-
Interest payables	-	-	-	-	210	-	210	-	-	-	-	-
Accrued bonus expense	-	-	-	-	1,159	-	1,159	-	-	-	-	-
Current derivative liabilities	-	-	-	341	-	-	341	-	341	-	-	341
Other current liabilities	-	-	-	-	397	120	517	-	-	-	-	-
Long-term borrowings from financial institutions	-	-	-	-	43,058	-	43,058	-	-	-	-	-
Debentures	-	-	-	-	18,874	-	18,874	-	19,207	-	-	19,207
Lease liabilities	-	-	-	-	189	-	189	-	-	-	-	-
Non-current derivative liabilities	-	-	-	154	-	-	154	-	154	-	-	154
Other non-current liabilities	-	-	-	-	687	-	687	-	-	-	-	-

Unit : Million Baht

	Separate financial statements						
	Carrying Value				Fair Value		
	Financial assets		Financial liabilities		Level		
	FVTPL - measured	FVTOCI - designated	Amortised cost	FVTPL - mandatorily measured	Amortised cost	Non-financial assets and non-financial liabilities	Total
						1	2
						3	Total
Cash and cash equivalents	-	-	8,553	-	-	-	8,553
Trade accounts receivable	-	-	9,711	-	-	-	9,711
Other receivables	-	-	211	-	-	1,373	1,584
Amounts due from related parties	-	-	166	-	-	-	166
Short-term loans and interest receivables to related parties	-	-	17	-	-	-	17
Other current assets	-	-	198	-	-	958	1,156
Other non-current financial assets	-	1,691	-	-	-	-	1,691
Long-term loans to related party	-	-	190	-	-	-	190
Derivative assets	141	-	-	-	-	-	141
Other non-current assets	-	-	25	-	-	318	343
Trade payables	-	-	-	-	23,919	-	23,919
Other payables	-	-	-	-	2,349	866	3,215
Amounts due to related parties	-	-	-	-	383	-	383
Interest payables	-	-	-	-	210	-	210
Accrued bonus expense	-	-	-	-	1,144	-	1,144
Current derivative liabilities	-	-	-	341	-	-	341
Other current liabilities	-	-	-	-	384	91	475
Long-term borrowings from financial institutions	-	-	-	-	43,058	-	43,058
Debentures	-	-	-	-	18,874	-	18,874
Lease liabilities	-	-	-	-	179	-	179
Non-current derivative liabilities	-	-	-	154	-	-	154
Other non-current liabilities	-	-	-	-	660	-	660

Fair value measurement

Level 1

The fair values of other non-current financial assets, which are available-for-sale are based on quoted bid price by references from the Stock Exchange of Thailand as at the end of reporting period.

Level 2

The fair values of Thai Baht debentures are calculated by applying the latest reference yield rate referred from the Thai Bond Market Association.

The fair values of derivatives, which are forward foreign exchange contracts and interest rate swap contracts are determined by the market price of each contract which are calculated by the financial institution of the Group as at the statements of financial position date. The fair values of commodity derivative contracts are the average quoted bid price and quoted selling price from the financial institutions that provided the services to the Group as at the statements of financial position date which the reasonableness is tested for those prices.

Level 3

The fair values of other non-current financial assets, which are non-marketable securities are based on the net asset method whereby the information is reasonably available.

The Company has no transfer between level 1 and level 2 in current year and prior year.

Reconciliation of Level 3 fair value measurements of financial instruments

The following table only demonstrates financial assets. The financial liabilities measured subsequently at fair value on Level 3 represent contingent consideration relating to a business combination. No gain or loss for the year relating to this contingent consideration has been recognised in profit or loss.

	Consolidated financial statements	Unit : Million Baht Separate financial statements
	Other non-current financial assets - unlisted shares	Other non-current financial assets - unlisted shares
Balance as at January 1, 2019	583	582
Total gains or losses:		
in profit or loss	1,043	1,043
Balance as at January 1, 2020	1,626	1,625
The effects from first-time adoption of new accounting policies	5	5
Total gains or losses:		
in other comprehensive income	8	8
Balance as at December 31, 2020	1,639	1,638

39. COMMITMENTS, LETTERS OF GUARANTEE AND SIGNIFICANT AGREEMENTS

(a) Commitments under agreements

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Contracted but not recognised in the financial statements				
- Purchase agreements for machinery and construction	1,271	1,889	1,254	1,889
- Consultation agreements	267	456	267	455
- Other agreements	912	433	889	440
Total	2,450	2,778	2,410	2,784

(b) Non-cancellable operating lease commitments

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Office building rental agreements:				
Not later than 1 year	2	90	2	214
Later than 1 year but not later than 5 years	-	98	-	98
	<u>2</u>	<u>188</u>	<u>2</u>	<u>312</u>
Land lease agreements:				
Not later than 1 year	-	5	-	5
Later than 1 year but not later than 5 years	-	20	-	20
Later than 5 years	-	14	-	14
	<u>-</u>	<u>39</u>	<u>-</u>	<u>39</u>
Vehicle rental agreements:				
Not later than 1 year	2	78	2	76
Later than 1 year but not later than 5 years	-	114	-	109
	<u>2</u>	<u>192</u>	<u>2</u>	<u>185</u>
Computer rental agreements:				
Not later than 1 year	14	52	13	52
Later than 1 year but not later than 5 years	13	20	12	20
	<u>27</u>	<u>72</u>	<u>25</u>	<u>72</u>
Total commitments under operating lease agreements	<u>31</u>	<u>491</u>	<u>29</u>	<u>608</u>
Service agreements:				
Not later than 1 year	78	7	77	7
Later than 1 year but not later than 5 years	31	7	30	7
Total commitments under service agreements	<u>109</u>	<u>14</u>	<u>107</u>	<u>14</u>

(c) Letters of guarantee and other commitments

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2020	2019	2020	2019
Letters of guarantee:				
Bank guarantees	<u>150</u>	<u>113</u>	<u>148</u>	<u>111</u>
Other commitments:				
Outstanding letters of credits	<u>70</u>	<u>5</u>	<u>70</u>	<u>5</u>

(d) The Company's tank farms and land expropriated for road construction

Some of the Company's tank farms are located in a yellow zone (low density residential zone) and a light green zone (recreational & environmental reserved zone) which are under the road project, Kor3 and Gor9, under the Ministerial Regulation on Town and Country Planning of Rayong Province B.E. 2549. Such plots of land were restricted from construction of factories, oil and gas tanks. At the present time, the Town and Country Planning Committee, Department of Public Works and Town and Country Planning has considered modifying the Rayong town plan as requested by the Company that the yellow zone and the light green zone be modified to a purple zone (industrial zone and tank farms) in order to operate oil and gas tank farms and to alter the construction plan of two public roads to be away from the Company's tank farm area. Failure of these modifications may affect the impairment of the operating assets.

The Town and Country Planning Committee has reviewed the draft of the Ministerial Regulations regarding Rayong Town Plan (4th revised) and removed the road project of Kor3 and Gor9 out from the draft of the Ministerial Regulations. Later, the notification from the Eastern Economic Corridor Policy Committee has been announced in the Royal Gazette indicates that the Company's tank farms are now located in a purple zone and able to operate the oil and gas tank farms.

(e) Use in public ways and gutters

The Company has filed a petition for the removal of public ways and gutters in accordance with Section 8 of the Land Code by providing the appropriate land for exchange with the public ways and gutters. The Company has also filed a request for permission to use the state land under Section 9 of the Land Code, which is located in the IRPC Industrial Zone Project at Ban Laeng sub-district, Ta Phong sub-district and Choeng Noen sub-district, Muang Rayong district, Rayong province. Currently, the Company has been granted the permission to use the state land under Section 9 of the Land Code and has also filed a request for a renewal of such permission within the period specified by the laws. Regarding the removal of the public ways and gutters under Section 8 of the Land Code, the Company is in the process of execution and considering of the relevant government agencies (see Note 40).

(f) Significant agreements with related parties and other entities

Sales/Purchase of Refined Oil Agreement from a depot, Chumporn province

The Company entered into a Sales/Purchase of Refined Oil Agreement from the depot in Chumporn province with PTT Oil and Retail Business Public Company Limited. The Company agrees to sell refined oil from its depot in Chumporn province at a quantity and pricing rates as stipulated in the agreement. The agreement is effective for a period of 1 year with a maturity date of December 31, 2020. The Company has extended the agreement to December 31, 2021. The new terms and conditions are stipulated in the renewal agreement.

Crude and Feedstock Supply Agreement

The Company has entered into Crude and Feedstock Supply Agreements with PTT Public Company Limited. The agreements shall be effective for a period of 1 year with maturity date on December 31, 2021. The purchase quantity and pricing structure of crude and feedstock supply are as stipulated in the agreements.

Gas Sale and Purchase Agreement

On June 9, 2009, the Company entered into a Gas Sale and Purchase Agreement with PTT Public Company Limited (PTT) for the quantity and price as specified in the agreement. The agreement is effective for a period of 10 years starting from the date gas is delivered by PTT and the date the Company is in receipt on January 1, 2011. The agreement can be extended under the conditions stipulated in the agreement.

Petroleum Products Sales and Purchase Agreement

The Company entered into sales and purchases agreement of petroleum products with a related party, with agreed quantity and prices as specified in the agreement. The agreement is for a period of 15 years from the effective date specified in the agreement and will end in February 2028, unless both parties agree to terminate the agreement before the expiry date by written notify.

Power and Steam Sale and Purchase Agreements

The Company entered into the Power Sale and Purchase Agreement and Steam Sale and Purchase Agreement with a related party to purchase electricity and steam according to the agreements. The term of the Power Sale and Purchase Agreement is 25 years, and the term of the Steam Sale and Purchase Agreement is 27 years and shall expire on November 14, 2042.

Compensation Agreement for Emission Reduction

On November 29, 2019, the Company entered into the Compensation Agreement for Emission Reduction of Nitrogen Oxides with a related party to provide the emission reduction of Nitrogen Oxides service within IRPC Industrial Park. The Company will receive compensation as specified in the agreement which is effective from November 29, 2019 until December 31, 2028.

Various Service Agreement

The Company entered into the Service Agreement with a related party to provide the accounting, finance, procurement, maintenance of power plant and other management services. The term of the agreement is 2 years from the effective date as stipulated in such agreement and shall expire within December 2022. The service fees are stipulated in the agreements.

40. SIGNIFICANT CLAIMS AND LEGAL PROCEEDINGS

The President of the Administrative Organization-Tambon Ban Laeng and 11 government agencies and Minister of Interior and 9 others

Ms. Phayung Meesabai and the other 44 plaintiffs filed a lawsuit to the President of the Administrative Organization - Tambon Ban Laeng and 11 government agencies as the 1st to 11th defendant requesting the Administrative Court of Rayong Province to suspend or dismiss any activities of the Company in expansion IRPC Industrial Zone Project, which it is the public ways and gutters shared to people in disputed area (see Note 39 (e)). In addition, they requested the Administrative Court to suspend or dismiss the opinion of the Environmental Health Impact Assessment (“EHIA”) report. Subsequently, the defendants filed the case and additionally submitted all docket to the Administrative Court. On March 31, 2017, the Company submitted the petition to Administrative Court to include the Company as 12th defendant in this lawsuit and the Administrative Court has agreed on this matter. On December 6, 2018, 11 plaintiffs submitted to withdraw from the case with Administrative Court which on December 12, 2018, the Administrative Court approved to withdraw the case. Subsequently, the Administrative Court has ordered that July 29, 2020 was the last day of investigation and has dismissed the case on August 27, 2020. The plaintiffs also submitted a petition of appeal to Supreme Administrative Court on September 23, 2020. The Supreme Administrative Court accepted the appeal of the plaintiffs and has ordered the defendants to revise the appeal. On December 21, 2020, the Company submitted the revision appeal to Supreme Administrative Court. As at December 31, 2020, the case is in the process of considering of the Supreme Administrative Court’s appeal.

In 2019, Ms. Phayung Meesabai and the other 4 plaintiffs filed a lawsuit to Minister of Interior and 9 others requesting the Administrative Court to suspend the removal of public ways and gutters process (see Note 39 (e)). On January 15, 2019, the Company submitted the petition as a defendant and additionally submitted the docket to the Court on June 14, 2019. Subsequently, the Administrative Court has ordered that August 5, 2020 was the last day of investigation and has dismissed the case on September 25, 2020. The plaintiffs also submitted a petition of appeal to Supreme Administrative Court on October 22, 2020 which the case is in the process of considering of the Supreme Administrative Court’s acceptance of the appeal.

41. EVENTS AFTER THE REPORTING PERIOD

On February 9, 2021, the Board of Directors' meeting of the Company passed a resolution to distribute an annual dividends for retained earnings of 2020 at Baht 0.06 per share for 20,434 million shares, totalling Baht 1,226 million. In this regard, the approval for the dividend shall be proposed to the Annual General Meeting of shareholders of the Company for the year 2021 for further consideration and approval.

42. APPROVAL OF THE FINANCIAL STATEMENTS

These financial statements have been approved for issue by the Company's Board of Directors on February 9, 2021.



IRPC PUBLIC COMPANY LIMITED

555/2 Energy Complex Building B,
6th Floor, Vibhavadi-Rangsit Rd.,
Chatuchak, Bangkok 10900 Thailand
TEL : 66 (0) 2765-7000
FAX : 66 (0) 2765-7001



www.irpc.co.th